FY2013

FORT BENNING

Army Defense Environmental Restoration Program

Installation Action Plan

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), Fort Benning, the Installation Management Command (IMCOM) Southeast, the executing agencies, regulatory agencies and the public, an IAP was completed. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

Acronyms

ACL	Alternate Concentration Limit
AEDB-CC	Army Environmental Database - Compliance-related Cleanup
AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
AST	Aboveground Storage Tank
bgs	below ground surface
Bldg	Building
BRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CAP	Corrective Action Plan
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMI(O)	Corrective Measures Implementation (Operation)
COC	Contaminant of Concern
CR	Compliance Restoration
CRP	Community Relations Plan
CS	Confirmatory Sampling
CWM	Chemical Weapons Munitions
DD	Decision Document
DDE	Dichlorodiphenyldichloroethene
DDT	Dichloro-diphenyl-trichlorethane
DEH	Directorate of Engineering and Housing
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DPE	Dual Phase Extraction
EOD	Explosive Ordnance Disposal
ER,A	Environmental Restoration, Army
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
GAEPD	Georgia Environmental Protection Division
GIS	Geographic Information Systems
HRC	Hydrogen Releasing Compound
HRR	Historical Records Review
HRS2	Revised Hazardous Ranking System
IAP	Installation Action Plan
IMCOM	Installation Management Command
IMRA	Interim Measures Removal Action
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
ISCO	In Situ Chemical Oxidation
LAAF	Lawson Army Air Field
LF	linear foot

Acronyms

LTM	Long-Term Management
LUC	Land Use Control
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MCOE	Maneuver Center of Excellence
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MOGAS	Motor Gasoline
MR	Munitions Response
N/A	Not Applicable
NFA	No Further Action
NPDWR	National Primary Drinking Water Standards
NPL	National Priorities List
NSDWR	National Secondary Drinking Water Regulations
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense for Installations and Environment
OMA	Operation and Maintenance and Army
ORC	Oxygen Releasing Compound
PAH	Polycyclic Aromatic Hydrocarbons
PBA	Performance Based Acquisition
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethylene
POL	Petroleum, Oil and Lubricant
ppb	parts per billion
PRG	Preliminary Remediation Goals
RA	Remedial Action
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SRFI	Supplemental RCRA Facility Investigation
SVOC	Semi-Volatile Organic Compounds
TAPP	Technical Assistance for Public Participation
TCE	Trichlorothylene
TRC	Technical Review Committee
ug/L	micrograms per liter
USACE	US Army Corps of Engineers
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEC	US Army Environmental Command

Acronyms

USAEHA	US Army Environmental Hygiene Agency
USAIS	US Army Infantry School
USATHAMA	US Army Toxic and Hazardous Materials Agency (currently called USAEC)
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
UTL	Upper Tolerance Limit
UXO	Unexploded Ordnance
VOC	Volatile organic compounds
WP	White Phosphorus

Acronym Translation Table

CERCLA		RCRA
Preliminary Assessment(PA)	=	RCRA Facility Assessment(RFA)
Site Inspection(SI)	=	Confirmation Sampling(CS)
Remedial Investigation/Feasibility Study(RI/FS)	=	RCRA Facility Investigation/Corrective Measures Study(RFI/CMS)
Remedial Design(RD)	=	Design(DES)
Remedial Action (Construction)(RA(C))	=	Corrective Measures Implementation (Construction)(CMI(C))
Remedial Action (Operation)(RA(O))	=	Corrective Measures Implementation (Operation)(CMI(O))
Long Term Management(LTM)	=	Long Term Management(LTM)
Interim Remedial Action(IRA)	=	Interim Measure(IM)

CERCLA		RCRA Underground Storage Tank (UST) Site Phase Terms
Preliminary Assessment(PA)	=	Initial Site Characterization(ISC)
Remedial Investigation(RI)	=	Investigation(INV)
Feasibility Study(FS)	=	Corrective Action Plan(CAP)
Remedial Design(RD)	=	Design(DES)
Remedial Action (Construction)(RA(C))	=	Implementation (Construction)(IMP(C))
Remedial Action (Operation)(RA(O))	=	Implementation (Operations)(IMP(O))
Long Term Management(LTM)	=	Long Term Management(LTM)
Interim Remedial Action(IRA)	=	Interim Remedial Action(IRA)

Installation Information

Installation Locale

Installation Size (Acreage): 182500
City: Columbus
County: Muscogee and Chattahoochee
State: Georgia
Other Locale Information

Fort Benning, situated in the western central portion of the state of Georgia, lies on the southern border of the city of Columbus, the second largest city in the state. Part of the reservation lies across the Chattahoochee River which forms the Georgia-Alabama border. It occupies an area of approximately 182,500 acres of which approximately 12,500 acres are in Alabama. Stretching about 20 miles north-south and east-west, Fort Benning covers three counties - Muscogee and Chattahoochee in Georgia and Russell in Alabama. The main post area of Fort Benning lies approximately eight miles southwest of the business district of Columbus, Georgia.

Installation Mission

Fort Benning and the Maneuver Center of Excellence (MCOE) provide trained, adaptive, and ready Soldiers and leaders for an Army at war, while developing future requirements for the individual Soldier and the Maneuver Force, and providing a world class quality of life for its Soldiers and Army families.

Lead Organization

IMCOM

Lead Executing Agencies for Installation

Investigative and RA phases - US Army Corps of Engineers (USACE) South Atlantic Division, Savannah District.

Regulator Participation

Federal	US Environmental Protection Agency (USEPA) Region IV, Atlanta, GA Branch
State	Georgia Environmental Protection Division (GAEPD)

National Priorities List (NPL) Status

FORT BENNING is not on the NPL

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

The community has expressed no sufficient, sustained interest in a RAB.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Metals, Pesticides, Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil, Surface Water

MMRP

Primary Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Affected Media of Concern: Soil

CR

Primary Contaminants of Concern: Other (Free-product), Petroleum, Oil and Lubricants (POL), Polycyclic Aromatic Hydrocarbons (PAH)

Affected Media of Concern: Groundwater, Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	200905	200910	2010
Underway	201206	201309	2013

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
Engineer Field Maintenance Shop	FBSB-39, FBSB-68, FBSB-88, FBSB-93, FBSB-99

Results The periodic review found that the remedy is protective. Groundwater remediation goals have been achieved at 14 out of 16 monitoring locations.

Actions Perform risk screening of suburface soils - only in the event of land use changes. Evaluate the vapor intrusion pathway in the next five year periodic review, if conditions change. Inject ORC-A in two identified groundwater hotspots.

Plans Injection of ORC-A at two remaining hotspots is planned for Jun 11. Continue land use controls after close out of groundwater monitoring to ensure risk screening of subsurface soils in the event of land use changes (future).

Recommendations and Implementation Plans:
Land use controls (LUCs) restricting the use of the surficial aquifer for potable water were implemented for SWMU-FBSB-39 by documentation in the base master plan geographic information systems (GIS) layer as well as in the approved corrective action plan (CAP). The periodic review report recommends that LUCs should be continued for this site even after the groundwater remediation goals are met to ensure that exposures to subsurface soils be reassessed if the future land use changes at this site. The base master plan GIS layer and the approved CAP should be amended by June 2011.

Land Use Control (LUC) Summary

LUC Title: Landfill 8

Site(s): FBSB-70

ROD/DD Title: FBSB-70 Landfill 8

Location of LUC

Landfill 8 is a closed landfill located on Main Post next to the Veterinary Clinic.

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict access to the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict vehicular traffic, Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Notations in Master Plan

Date in Place: 200510

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200510

LUC Enforcement: Annual Inspections

Contaminants: DIOXINS/DIBENZOFURANS, METALS

Additional Information

N/A

LUC Title: Pesticide Storage Area

Site(s): FBSB-86

ROD/DD Title: PESTICIDE MIXING/STORAGE AREA

Location of LUC

A small amount of DDT pesticide was located under the foundation of one of the buildings on-site (Bldg 266) and could not be removed without endangering the stability of the building. The pesticide was left in place and contained using heavy duty vinyl plastic sheeting and was also covered with fresh soil. If the building is ever demolished, the small amount of pesticide under the foundation must be removed and disposed of.

Land Use Restriction: Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on Groundwater Withdrawal, Restrictions on land use, Zoning

Date in Place: 199609

Modification Date: N/A

Land Use Control (LUC) Summary

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

LUC Enforcement: Annual Inspections

Contaminants: PESTICIDES

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

Fort Benning is an active US Army Garrison facility under the jurisdiction of IMCOM Southeast. Originally known as Camp Benning, the fort was established in September 1918 as a temporary facility and named in honor of a local Confederate hero, General Henry Lewis Benning. It was selected as the site for the new US Army Infantry School (USAIS) when the infantry training centers located at Fort Sill, Oklahoma, and Camps Perry and Hancock, Georgia, were closed.

In June 1919, the US Army purchased a large plantation from its owner, Arthur Bussey, and established headquarters in the family residence, which was known as Riverside. With the construction of new facilities and the relocation of the US Army infantry board from Fort Leavenworth, Kansas, Camp Benning began to grow. In 1922, it achieved permanent military status and was consequently redesignated as Fort Benning. It has been in continuous operation since that time.

Major troop units stationed at Fort Benning include the 3rd Brigade, 3rd Infantry Division, 75th Ranger Regiment, 11th Engineer Battalion (Combat), 13th Combat Sustainment Support Battalion, 14th Combat Support Hospital, and the 17th Air Support Operations Squadron.

As a result of the Base Realignment and Closure (BRAC) commission's decision to move the armor school from Fort Knox, Kentucky to Fort Benning in 2011, the USAIS and the US Army Armor School has been integrated into the MCOE. Although both branches combine to form the MCOE, they also retain their individual prepotencies.

The 1982 installation assessment and revised hazard ranking system scoring (HRS2) found that Fort Benning's solid waste management units (SWMUs) cumulatively pose little health or safety threat or a threat to the environment; however, certain individual sites pose greater health threats. For example, long-term exposure to the former pesticide mixing and storage facility may have resulted in an elevated cancer risk to workers.

In 1994, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) conducted a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) of the installation. In 1995, the installation entered into a RCRA part B permit with the state of Georgia. All of the identified SWMUs were listed in the part B permit. When the RCRA part B permit expired in 2005, the installation entered into a corrective action permit with the state on Sept. 23, 2005. In general, most SWMUs require no RA, and those that do require corrective action are using monitored natural attenuation (MNA) combined with long-term monitoring. Fort Benning's Defense Environmental Restoration Program (DERP) has already addressed many of its identified cleanup sites. Nonetheless, cleanup actions will continue until 2013 and possibly longer, depending on requirements presented by the state.

Installation Program Cleanup Progress

IRP

Prior Year Progress: The MNA will continue under the corrective measures implementation (operation) [CMI(O)] phase for eight sites: FBSB-26, FBSB-64, FBSB-99, FBSB-68, FBSB-93, FBSB-94, FBSB-100, FBSB-101. Four sites will continue in the long-term management (LTM) phase: FBSB-39, FBSB-70, FBSB-75, FBSB-86.

Future Plan of Action: The MNA will continue under the CMI(O) phase for six sites. Eight sites will be in LTM phase as we try to establish three years of confirmatory sampling (CS). Contaminated soil removal and replacement will take place at FBSB-86.

MMRP

Prior Year Progress: A performance-based acquisition (PBA) contract for execution of the RFI for FTBN-001-R-01 was awarded in September 2012. The RFI fieldwork is scheduled to begin in April 2013 and should be concluded by the end of 2013.

Future Plan of Action: Depending on what is discovered during the RFI, corrective action and LTM may be required in the fiscal year (FY)14-15 time frame. The RFI report will be submitted to GAEPD for approval in 2014.

CR

Prior Year Progress: Since a rebound of free-product returned at CC-2485, a second in situ chemical oxidation (ISCO) took place in July of 2012, to remove the residual product in the subsurface and reduce constituents in groundwater of this site. CC-1622 received a no further action (NFA) from GAEPD. The soil

removal at the former skeet range CC-FBSB-102 will be completed. The RFIs at FBSB-103 and FBSB-104 will be conducted. A new site, Harmony Church Former Fire Training Area, will be added to the program.

Future Plan of Action: The RFIs at FBSB-103 and FBSB-104 will be completed and corrective action, if any will be initiated at both sites. The RFI at the Harmony Church Old Fire Training Area will be completed. CC-2485 should meet the criteria for an NFA designation from GAEPD.

FORT BENNING

Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 46/34

Installation Site Types with Future and/or Underway Phases

1 Above Ground Storage Tank
(FBSB-101)
1 Contaminated Buildings
(FBSB-39)
1 Contaminated Sediments
(FBSB-99)
4 Landfill
(FBSB-64, FBSB-68, FBSB-70, FBSB-75)
3 Spill Site Area
(FBSB-86, FBSB-93, FBSB-94)
1 Training and Maneuver Area
(FBSB-100)
1 Underground Storage Tank
(FBSB-26)

Most Widespread Contaminants of Concern

Metals, Pesticides, Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern

Groundwater, Soil, Surface Water

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FBSB-75	LANDFILL NO. 13	IRA	CAPPING	1996
FBSB-96	MAIN MALL SERVICE STATION	FRA	REMOVAL	1998
FBSB-86	FORMER PEST MIXING STOR AREA (BLDG 1396)	FRA	WASTE REMOVAL - SOILS	1999
FBSB-95	LEAKING USTS	FRA	AIR SPARGING	2001
FBSB-26	FIXED LAUNDRY (BLDG 2500)	FRA	NATURAL ATTENUATION	2005
FBSB-64	LANDFILL NO. 2	FRA	NATURAL ATTENUATION	2005
FBSB-68	LANDFILL NO. 6	FRA	NATURAL ATTENUATION	2005
FBSB-75	LANDFILL NO. 13	FRA	NATURAL ATTENUATION	2005
FBSB-88	OLD FIRE TRAINING AREA	FRA	NATURAL ATTENUATION	2005
FBSB-94	INSTALLATION GAS STATIONS	FRA	WASTE REMOVAL - LIQUIDS	2005
FBSB-39	ENG FIELD MAIN SHOP (BLDG 377)	FRA	NATURAL ATTENUATION	2006
FBSB-70	LANDFILL NO. 8	FRA	NATURAL ATTENUATION	2006
FBSB-99	ORDNANCE SHOP	FRA	NATURAL ATTENUATION	2006
FBSB-101	Two 30,000 gal AST's	IRA	REMOVAL	2007
FBSB-101	Two 30,000 gal AST's	FRA	NATURAL ATTENUATION	2007
FBSB-39	ENG FIELD MAIN SHOP (BLDG 377)	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2007
FBSB-64	LANDFILL NO. 2	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2007
FBSB-93	INSTALL TANK RPR/VEH MAINT SHOPS	FRA	CHEMICAL REDUCTION/OXIDATION	2007

IRP Summary

Duration of IRP

Date of IRP Inception: 198201

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 200709/201610

Date of IRP completion including Long Term Management (LTM): 202109

IRP Contamination Assessment

Contamination Assessment Overview

In early surveys, Fort Benning considered the landfills to be of most concern. In 1986 the US Army Environmental Hygiene Agency (USAEHA) began surveying the landfills at Fort Benning for soil and groundwater contamination. Today, all of Fort Benning's landfills, except those that are newly discovered, have been evaluated.

Fort Benning's groundwater problems are minor. Notably, all contamination is restricted to areas on-post; it is highly unlikely that contaminants will migrate off-post. Furthermore, because Fort Benning is a large installation (about 182,500 acres), groundwater resources are enormous. The areas of contamination currently present will not significantly affect potential use of groundwater on the installation in the future.

Most areas of contamination at Fort Benning are small and are best remediated through simple removals. To date, 211 USTs and surrounding contaminated soil have been removed. In the future, the DERP may begin addressing lead contamination on closed and inactive firing and demolition ranges. One site with possible unexploded ordnance (UXO) contaminants was identified and is being investigated under the Military Munitions Response Program (MMRP). At the pesticide mixing and storage facility, cleanup of pesticide contamination has been accomplished through simple excavation and incineration off-post.

There is no significant contamination from landfill activities except for the aquifer under Landfill 13 and Landfills 6 and 8. The aquifer under Landfill 13 is contaminated with trichloroethylene (TCE) and other contaminants. A CAP for this site, using MNA, was accepted by the GAEPD. Other Fort Benning landfills, including Landfills 6 and 8, have been investigated and will require corrective action, erosion control, and LTM.

Releases of gasoline, related fuels, and VOCs have caused the majority of Fort Benning's groundwater problems. Cleanup of groundwater contamination at leaking UST sites is also a high priority. Several former gas station sites, such as Bldg 3763, require MNA as a cleanup strategy. The main mall gasoline station was successfully cleaned up using air sparging and soil vapor extraction.

In 2007, two new sites (FBSB-100 and FBSB-101) were added to the program. These are sites that were overlooked during the installation assessment, which was conducted in the late-1980s. The VOCs in groundwater are the probable contaminants at these sites. Most SWMUs require no further RA, though some require MNA and LTM. Fort Benning's DERP has already addressed many of its identified cleanup sites. Nonetheless, cleanup actions and LTM will continue until 2016.

Cleanup Exit Strategy

Sites with contaminated soils that exceed the soil regulatory screening levels will have the soil excavated, removed and replaced with clean soil. Sites with groundwater contamination will undergo risk assessments [when no maximum contaminant level (MCL) has been established] to determine if corrective action is required. If corrective action is required, a CAP, recommending MNA, will be submitted to the state for approval.

IRP Previous Studies

	Title	Author	Date
1977			
	Landfill Study No. 26-0026-78, Fort Benning, Georgia, Landfill 13	USAEHA	AUG-1977
1979			
	DEH Draft Environmental Impact Statement: Ongoing Siting and Mission Activities.	US Army Infantry Center, Fort Benning, Georgia	SEP-1979
1982			
	Installation Assessment of Fort Benning, Georgia. Report No. 307	Prepared for USATHAMA by Environmental Science and Engineering	JUL-1982
1986			
	Groundwater Study No. 38-26-0905-87. Leachate Detection at Landfills 7 and 8	USAEHA	JUN-1986
	Geohydrologic Study No. 38-26-0833-87. Landfills 2 and 21	USAEHA	SEP-1986
	Geohydrologic Study No. 38-26-0602-87. Landfills 5 and 6	USAEHA	SEP-1986
1987			
	Geohydrologic Study No. 38-26-0816-87. Groundwater Quality at Closed Landfills 12, 14, and 15	USAEHA	FEB-1987
	USAEHA Geohydrologic Study NO. 38-26-0867-88. Groundwater Quality Investigations at Closed Landfills 16 and 19	USAEHA	MAY-1987
	Geohydrologic Study No. 38-26-0817-88. Landfills 3, 9, 18, and 20	USAEHA	SEP-1987
	Geohydrologic Study No. 38-26-0818-88. Landfills 4 and 10	USAEHA	SEP-1987
	Groundwater Quality Investigations at Closed Landfills 1, 11, 12, 13, 14, 15, 16, 19, and 23	USAEHA	SEP-1987
1988			
	Solid Waste Disposal Consultation No. 38-26-0889-88. Evaluation of the Cover System at Landfill No. 13	USAEHA	FEB-1988
	Environmental Operations Review No. 43-21-7035-89	USAEHA	SEP-1988
	Solid Waste Management Survey No. 38-26-0886-88	USAEHA	SEP-1988
1989			
	Site Specific Health and Safety Plan, Landfill No. 13	Prepared for the Savannah District Corps of Engineers by Hunter/ESE, Inc	JAN-1989
	RCRA Facility Investigation Work Progression Plan, Phase I, Landfill No. 13	Prepared for the Army Corps of Engineers, Kansas City District by Hunter/ESE Inc.	JAN-1989
	Fort Benning Remedial Investigation, Phase I, Technical Memorandum (Landfill 13	Prepared for the US Army Corps of Engineers, Kansas City District, by Environmental Science and Engineering, Inc	JUL-1989
1990			
	Fort Benning Remedial Investigation, Phase II, Technical Memorandum (Landfill 13).	Prepared for the US Army Corps of Engineers, Kansas City District, by Environmental Science and	MAY-1990

IRP Previous Studies

	Title	Author	Date
1990			
		Engineering, Inc.	
	Solid Waste Disposal Consultation No. 38-62-0190-91	USAEHA	SEP-1990
	Fort Benning Waste Analysis, Contract No. DABT1090P7030	Bio-Chem Analysts, Inc	SEP-1990
	Conceptual Design - 35 Design and Corrective Measures Study, Landfill No. 13	Prepared for the Kansas City District Corps of Engineers by Environmental Science and Engineering, Inc	OCT-1990
	Corrective Action Plan for Main Mall Service Station, Underground Fuel Storage Tanks	US Army Corps of Engineers, Savannah District.	OCT-1990
1991			
	Groundwater Quality Survey No. 38-26-0390-91. Camp Frank D. Merrill, Dahlonega	USAEHA	JUL-1991
	100% Specification Submittal for the Closure of Fort Benning Landfill No. 13	Prepared for the US Army Corps of Engineers, Kansas City District, by Environmental Science and Engineering, Inc.	JUL-1991
	100% Specification Submittal Operation and Maintenance Manual for the Closure of Fort Benning Landfill No.13	Prepared for the US Army Corps of Engineers, Kansas City District, by Environmental Science and Engineering	JUL-1991
	100% Submittal Health and Safety Design Analysis for the Closure of Fort Benning Landfill No. 13	Prepared for the US Army Corps of Engineers, Kansas City District, by Environmental Science and Engineering, Inc	JUL-1991
	Geohydrologic Study No. 38-26-K969-91	USAEHA	SEP-1991
1992			
	Preliminary Site Inspection For Fort Benning Military Reservation	Prepared for the US Army Corps of Engineers by Advanced Science, Inc.	JAN-1992
	Remedial Investigation/Feasibility Study, Fort Benning Pesticide Site, Chemical Agent Burial Site	Prepared for USATHAMA by ABB Environmental Services, Inc.	OCT-1992
1993			
	Final Installation Action Plan (IAP) for Fort Benning, Georgia	Prepared for the Savannah District Corps of Engineers by B & V Waste Science and Technology, Inc	JUL-1993
1994			
	Geohydrologic Study No. 38-26-KW27-94, Old Fire Training Area	USAEHA	SEP-1994
	RCRA Facility Assessment No. 38-26-2650-95	USACHPPM	DEC-1994
1995			
	RCRA Facility Assessment No. 38-26-3299-95	USACHPPM	AUG-1995

IRP Previous Studies

	Title	Author	Date
1997			
	Subsurface Investigation for Relative Risk Ranking, Thirteen Installation Restoration Program (IRP) Sites	Savannah District USACE.	SEP-1997
1998			
	Phase I RFI Reports for FY97 SWMU Group	Savannah District USACE	DEC-1998
2000			
	RFI Reports for FY98 SWMU Group	Savannah District USACE.	JAN-2000
2002			
	RFI Reports for FY01 IRP SWMU Sites	Fort Benning Georgia	SEP-2002
	RFI Reports for FY02 IRP SWMU Sites	Fort Benning Georgia	SEP-2002
2003			
	Fort Benning Baseline Risk Assessment Installation Work Plan and Supportive Documents	Fort Benning Georgia	JUL-2003
2004			
	Phase III RCRA RFI for the Installation Tank Repair Compound, Vehicle Maintenance Shop Compound and Installation Gas Station, Building 3763	Fort Benning Georgia	MAR-2004
	Revised Final Work Plan, Interim Measures Removal Action for SWMU FBSB-97 Abandoned Drum Disposal Site	Fort Benning Georgia	MAR-2004
	Corrective Action Plan for SWMU FBSB-39, Building 377, Engineering Field Maintenance Shop	Fort Benning, Georgia	MAY-2004
	Chemical Safety Submission, Chemical Agent Burial Site, Harmony Church Area	Fort Benning, Georgia	AUG-2004
	RCRA Facility Workplan, Chemical Agent Burial Site	Fort Benning Georgia	SEP-2004
	Corrective Action Plan for SWMU-88, Old Fire Training Area	Fort Benning Georgia	DEC-2004
2005			
	Supplemental RFI Report and Baseline Risk Assessment for the Installation Tank Repair/Vehicle Maintenance Shop Compound, SWMUs FTBN-34O, FTBN-54C and FBSB-93	Fort Benning Georgia	FEB-2005
	Final Construction Summary Report, Maintenance Activities, Landfill 8	Fort Benning Georgia	FEB-2005
	Final Site Inspection Report, Military Munitions Response Program	Fort Benning GA	APR-2005
	Final Workplan, Extended Anomaly Investigations, MMRP	Fort Benning, Georgia	DEC-2005
	Corrective Action Plan, Fourth Semi-Annual Progress Report for SWMU FBSB-39, Building 377, Engineering Field Maintenance Shop	Fort Benning Georgia	DEC-2005
2006			
	Year 2006 Corrective Action Plan Progress Report for Landfill 13, Fort Benning, Georgia	Prepared by US Army Corps of Engineers, Savannah District	SEP-2006
	Corrective Action Plan Third Semi-Annual Progress Report for SWMU FBSB-88, Old Fire Training Area, Fort Benning, Georgia	Prepared by US Army Corps of Engineers, Savannah District.	OCT-2006
2007			

IRP Previous Studies

	Title	Author	Date
2007			
	Final Grenade and Bayonet Court Extended Anomaly Investigation, Fort Benning, Georgia	Prepared by US Army Corps of Engineers, Baltimore District	JAN-2007
	Corrective Action Plan First Semi-Annual Progress Report for SWMU FBSB-99 (FTBN-057) Small Arms Ordnance Shop No. 3, Fort Benning, Georgia	Prepared by the US Army Corps of Engineers, Savannah District	JAN-2007
	1st Semi-Annual Corrective Action Plan Progress Report for SWMU FBSB-26A/26C (FTBN -071) Former Fixed Laundry Facility, Fort Benning, Georgia.	Prepared by US Army Corps of Engineers, Savannah District	FEB-2007
	Corrective Action Plan First Semi-Annual Progress Report for SWMU FBSB-64 (FTBN-002), Closed Landfill 2, Fort Benning, Georgia	Prepared by US Army Corps of Engineers, Savannah District	FEB-2007
	Year 2007 Corrective Action Plan Progress Report for Landfill 13	US Army Corps of Engineers, Savannah District	OCT-2007
2008			
	Corrective Action Plan Third Semi-Annual Progress Report for SWMUs FBSB-99, FBSB-26, and FBSB-64	US Army Corps of Engineers, Savannah District	APR-2008
	Corrective Action Plan Fourth Semi-Annual Progress Report for SWMUs FBSB-99, FBSB-26, and FBSB-64	US Army Corps of Engineers, Savannah District	SEP-2008
	Year 2008 Corrective Action Plan Progress Report for Landfill 13	US Army Corps of Engineers, Savannah District	OCT-2008
2009			
	Corrective Action Plan Fifth Semi-Annual Progress Report for SWMUs FBSB-99, FBSB-26, and FBSB-64	US Army Corps of Engineers, Savannah District	MAR-2009
	Corrective Action Plan Sixth Semi-Annual Progress Report for SWMUs FBSB-99, FBSB-26, and FBSB-64	US Army Corps of Engineers, Savannah District	SEP-2009
	Year 2009 Corrective Action Plan Progress Report for Landfill 13	US Army Corps of Engineers, Savannah District	NOV-2009
2010			
	Corrective Action Plan Sixth Annual Progress Report for SWMU FBSB-86, Building 1396, Former Pesticide Mixing and Storage Area	US Army Corps of Engineers, Savannah District	JUL-2010
	RCRA 5 Year Periodic Review for SWMU FBSB-86 Former Pesticide Mixing and Storage Area	US Army Corps of Engineers, Savannah District	SEP-2010
2011			
	Corrective Action Plan Seventh Annual Progress Report for SWMU FBSB-86, Building 1396, Former Pesticide Mixing and Storage Area	US Army Corps of Engineers, Savannah District	MAY-2011
	Eighth Semiannual CAP Progress Report for SWMU FBSB-68 Closed Landfill No. 6	US Army Corps of Engineers, Savannah District	JUL-2011
	Year 2010 Corrective Action Plan Progress Report for Landfill 13.	US Army Corps of Engineers, Savannah District	JUL-2011
	Eighth Annual Monitoring Only Report for Installation	Prepared by SAIC for the	DEC-2011

IRP Previous Studies

	Title	Author	Date
2011			
	Gas Station , Building 3763, Underground Storage Tank Facility ID #9026343	US Army Corps of Engineers, Savannah District	
2012			
	Corrective Action Plan Progress Report (May 2011 event), Corrective Action Design and Implementation for SWMU FBSB-93: Installation Tank Repair Vehicle Maintenance Shop	Prepared by J2 Engineering for the Savannah District Corps of Engineers	JAN-2012
	Supplemental Monitoring Report for Installation Gas Station, Building 3763, Underground Storage Tank Facility ID 9026343	Prepared by SAIC for the US Army Corps of Engineers, Savannah District	MAR-2012
	Year 2011 Corrective Action Plan Progress Report for Landfill 13, Fort Benning, Georgia	Prepared by SAIC for US Army Corps of Engineers, Savannah District	MAR-2012
	Corrective Action Plan Eighth Annual Progress Report SWMU FBSB-86, Building 1396, Former Pesticide Mixing and Storage Area	US Army Corps of Engineers, Savannah District	JUN-2012
	Corrective Action Plan Eighth Annual Progress Report for SWMU FBSB-86, Building 1396, Former Pesticide Mixing and Storage Area	Savannah District Corps of Engineers	JUN-2012
	Corrective Action Plan Progress Report (May 2012 Event) for SWMU FBSB-101: Two ASTs Site at Sand Hill	Savannah District Corps of Engineers	DEC-2012
2013			
	11th Semi-Annual Corrective Action plan Progress Report for SWMU FBSB-68, Closed Landfill No. 6	Savannah District Corps of Engineers	JAN-2013
	Corrective Action Plan, 18th Semi-Annual Progress Report for SWMU FBSB-39, Building 377, Engineering Field Maintenance Shop	Savannah District Corps of Engineers	JAN-2013
	Corrective Action Plan Progress Report (August 2012 Event) for SWMU FBSB-100: Running Track Site at Sand Hill	Savannah District Corps of Engineers	FEB-2013

FORT BENNING

Installation Restoration Program

Site Descriptions

Site ID: FBSB-100
Site Name: Athletic Field in Sand Hill

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA	200403	200508
RFI/CMS	200705	200707
CMI(C)	200707	200708
CMI(O)	200709	201511
LTM	201512	202009

RIP Date: 200709

RC Date: 201511

SITE DESCRIPTION

This site is located close to a running track which is part of an athletic and training complex in the Sand Hill area of Fort Benning. The site is northeast and upgradient of FBSB-93, the tank automotive repair shop, which is another SWMU located in the Sand Hill training area. A monitoring well was constructed at FBSB-100 to serve as an upgradient groundwater monitoring well for the investigation at FBSB-93. Various contaminants were detected in the groundwater and in the surface and subsurface soils at this site which indicated an upgradient source of contamination not associated with the tank automotive repair shop. 4,4-dichlorodiphenyltrichloroethane (DDT), 4,4-dichlorodiphenyldichloroethene (DDE), cadmium, lead, aldrin, methylene chloride, and benzene were discovered in the surface and subsurface soils, and phenol, TCE and xylene were detected in the groundwater. An RFI, completed in FY07, only identified VOCs in groundwater as contaminants of concern (COCs). In September 2008 a draft RFI report and draft CAP were completed and submitted to the GAEPD. Comments concerning the RFI report were received from the state in December 2008.

The RFI report and draft CAP were extensively revised to incorporate all of the GAEPD comments. Instead of replying to individual comments the revised RFI report was submitted to GAEPD in September 2010 and the CAP was submitted in December 2010.

Emulsified vegetable oil with lactate along with an amendment to raise the pH was injected to prepare the subsurface conditions. Reducing conditions were established and microbes were injected into the groundwater.

Additional comments concerning the revised RFI report and CAP were received from GAEPD. The state requested an evaluation for vapor intrusion be added as part of the RFI. They also requested that two additional monitoring wells be installed and added to the monitoring program for corrective action.

Two additional monitoring wells were installed and added to the monitoring program in FY12. Upon receipt of funding, a vapor intrusion evaluation will be incorporated into the RFI report. We have implemented corrective action and have planned a supplemental injection of microbes for FY13. Recent sampling results (FY12) indicate that TCE concentrations have declined to levels slightly above the remedial goal.

CLEANUP/EXIT STRATEGY

MNA is being conducted in conjunction with enhanced bioremediation to address low level detections of TCE in the groundwater. MNA will be continued until remedial goals are achieved. A five-year review to assess the effectiveness of the remedy is being conducted. Once remedial goals are reached, a three-year period of CS will be conducted. Groundwater well abandonment will occur after NFA is reached.

Site ID: FBSB-101
Site Name: Two 30,000 gal AST's

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA	200405	200509
RFI/CMS	200703	200706
IRA	200707	200709
CMI(C)	200707	200709
CMI(O)	200709	201609
LTM	201610	202109

RIP Date: 200709

RC Date: 201610

SITE DESCRIPTION

This site was discovered during the RFI for the tank automotive shop (FBSB-93) which is nearby. Two abandoned and rusty 30,000-gallon aboveground storage tanks (ASTs) were discovered along with the cement foundation remnants of an adjacent pump house and associated piping. The ASTs were located in dense woods next to a railroad siding and could not easily be seen from the road. The tanks were evidently used to refuel trains and were overlooked during the installation survey for potential sites for the Installation Restoration Program (IRP) in the late-1980s. A groundwater sample taken adjacent to the ASTs from a location downgradient to them was found to contain benzene, toluene, ethylbenzen and xylene (BTEX). Benzene levels in the groundwater were detected at 220 parts per billion (ppb). The detections of BTEX were attributed to the ASTs and the state of Georgia required that the ASTs be investigated as a separate SWMU under the Fort Benning RCRA corrective action permit. The state also requested that the ASTs and piping be removed as a source of continuing groundwater contamination. An RFI, completed in FY07, only identified VOCs in groundwater as COCs. In September 2008 a draft RFI report and draft CAP were completed and submitted to the GAEPD. Comments from the state were received in December 2008.

The work plan for the interim removal of the two ASTs was approved by the GAEPD in FY08, and both ASTs were removed along with all the associated piping between the ASTs and the pump house.

A response to the RFI report comments was prepared and submitted. In their comments, the GAEPD requested additional delineation and revisions to the RFI report.

Both the RFI and the CAP were revised to incorporate all of the GAEPD comments. Instead of replying to individual comments the revised RFI report was sent to the state in November 2010 and the draft CAP submitted to the state in January 2011.

Construction of the remediation system was completed in December of 2011 and the system became operational.

The CAP was approved by GAEPD in FY12. The remediation system has been in operation for one year. Concentrations of benzene and other petroleum hydrocarbons have been declining along with a reduction of free-product.

CLEANUP/EXIT STRATEGY

Corrective action involves free-product removal using dual-phase extraction (DPE), which is currently ongoing. This will be followed by performance monitoring until remediation goals have been achieved. A five-year review is also being conducted to evaluate the efficiency of the remediation process. After remediation goals have been achieved, a three-year period of CS will follow. After NFA is reached, site closeout and groundwater well abandonment will occur.

Site ID: FBSB-26
Site Name: FIXED LAUNDRY (BLDG 2500)

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA	198201	198207
CS	199705	199710
RFI/CMS	199801	200509
CMI(C)	200507	200509
CMI(O)	200509	201409
LTM	201412	202009

RIP Date: 200509

RC Date: 201412

SITE DESCRIPTION

Bldgs 2500 (SWMU 26C) and 2501 (SWMU 26A) were located at the intersection of Indianhead Road and Marchant Street on the main post. Operations at the facility ceased in 1984 and the buildings were demolished in January 1994. The area, approximately 250 feet by 250 feet, is now covered with asphalt and grass.

This site was first mentioned in the 1982 installation assessment of Fort Benning. Unfortunately, that document did not address the potential for past contamination at the site. The single reference to this facility on page 2-2 of that document states, "Bldg. 2500 houses a laundry in which no dry cleaning is performed." Additionally, the study gave no information about how the site was evaluated.

According to installation personnel who were interviewed, from the 1940s until 1984 all installation laundry and dry cleaning was processed at this site. Dry cleaning solvents previously used at the facility were stored in 20 to 50-gallon tanks inside the building. These tanks were removed when the operations ceased in 1984. No spills have been reported at the facility.

In December 1993, a site visit by Fort Benning personnel revealed what appeared to be three pipes coming out of the ground which may indicate the presence of USTs. A search of as-built construction drawings failed to confirm the presence of USTs. A geophysical survey conducted in 1999 failed to detect any USTs or associated piping.

Site FBSB-64 (Landfill 2) and FBSB-99 are both upgradient of the fixed laundry facility and may be contributing to the contamination detected at this site. Additionally, there are three other non-Environmental Restoration, Army (ER,A) SWMUs upgradient of both Landfill 2 and the fixed laundry facility which may be contributing to the contamination detected at this site. In FY98, the installation decided to conduct a full RFI using operations and maintenance and Army (OMA) funds for this phase. Results of the RFI indicated groundwater contamination in the form of chlorinated solvents in several upgradient wells. Because of the proximity of this site to FBSB-64, closed Landfill 2, both sites required additional investigation to determine the actual source of the contamination.

Since similar groundwater contaminants were detected in wells at FBSB-64 and FBSB-99, a supplemental RFI was completed in 2005. The supplemental RFI and baseline risk assessment (BRA) report was submitted to the GAEPD and approved. In August 2006, a CAP was submitted to the GAEPD and approved.

The first, second, and third CAP progress reports were submitted to the GAEPD. The results demonstrated that the detected concentrations of TCE in groundwater have been declining.

At the request of the GAEPD, the CAP progress reports for FBSB-26, FBSB-64 and FBSB-99 were combined into one report beginning with the submission of the third CAP progress report. Sampling results indicated that overall chlorinated solvent concentrations are still decreasing.

The CAP progress reports 7,8, 9 and 10 have been submitted to the GAEPD. Sampling reports showed a continued reduction in

total chlorinated solvent concentrations.

When a spike in concentrations of TCE occurred in three groundwater monitoring wells during the sixth and seventh sampling events a re-application of hydrogen releasing compound (HRC) took place in the summer of 2010. This supplemented a previous injection of HRC in 2007.

Concentrations of TCE have been decreasing since the supplemental injection of HRC in 2010. An additional HRC injection is planned for FY13 if necessary; however, evaluating the most recent sampling data shows that concentrations of COCs have been below the remediation goals in all wells (except two) for a period of three years. The two wells have been below remediation goals for a period of two years.

CLEANUP/EXIT STRATEGY

The cleanup strategy includes continued performance monitoring of groundwater with the possibility of supplemental HRC injections in the future. A five-year review is scheduled for completion in FY13. A review of the sampling history for this site indicates that there have been no concentrations above the remedial goals for the past two years. In FY13 a request will be made to reduce the number of wells sampled at this site. Once all wells have been below remediation goals for three years, a request to discontinue sampling at FBSB-26 will sent to the GAEPD.

All groundwater monitoring wells at this site will be left in place until upgradient sites (FBSB-64) and (FBSB-99) have reached their remediation goals. After NFA for all three sites is reached all groundwater monitoring wells will be abandoned.

Limited LUCs, restricting the use of groundwater for drinking purposes, are in place until NFAs have been achieved at all sites.

Site ID: FBSB-39
Site Name: ENG FIELD MAIN SHOP (BLDG 377)

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA	198201	198207
CS	199705	199710
RFI/CMS	200007	200504
CMI(C)	200505	200709
CMI(O)	200603	200809
LTM	200810	201809

RIP Date: 200709

RC Date: 200809

SITE DESCRIPTION

Bldg 377 is a very large L-shaped building located at the west end of Tenth Division Road on the main post. Hazardous waste storage and operational practices were changed in 1986 to meet new environmental regulatory requirements. Based on practices prior to 1986, spills of diesel fuel, motor gasoline (MOGAS), antifreeze, waste oil, polychlorinated biphenyls (PCBs) and cleaning solvents may have occurred. The asphalt at the site is in very poor physical condition, which may be the result of spills.

In the July 1993 draft of Fort Benning's IAP the shop foreman reported that the site has been used for vehicle maintenance for at least 30 years. In June 1993, two 10,000-gallon capacity USTs containing diesel and MOGAS were removed from the northeast corner of the site. All wastes are presently sent to the post boiler plant for energy recovery. Staining was noted in the vicinity of the waste fuel area as well as throughout the vehicle parking lot. The 1982 preliminary site assessment addressed all sites at Fort Benning generating hazardous waste, but it did not address specific sites. Bldg 377 was never mentioned by name though the study generally evaluated POL handling facilities.

Results of an RFI conducted in FY01 indicated petroleum-related groundwater contamination in the vicinity of the washrack and UST adjacent to Bldg 377. Pesticide contamination above risk-based levels was also detected in the soil near Bldg 377. Arsenic and thallium were detected above background levels in the soils.

In FY01, additional groundwater monitoring wells were installed and sampled to delineate upgradient and downgradient groundwater contamination. Additional soil samples were collected to delineate the extent of pesticide contamination in the soil. Results confirmed that pesticides are not COCs.

A supplemental RFI report and a BRA were submitted and approved by the GAEPD. A CAP for MNA was submitted and approved by the GAEPD. Ten CAP progress reports have been submitted to the state. As a result of a significant reduction in concentration of the COCs due to MNA, the GAEPD has approved a recommendation to reduce the number of wells in the monitoring program from 14 to 10.

In June 2007, an oxygen-releasing compound (ORC) injection was completed at this site to expedite the rate of bioremediation. On Nov. 14, 2007 the seventh CAP progress report was submitted to the GAEPD. No COCs were detected in any of the wells sampled. The eighth progress report showed a slight rebound of concentrations of 1,3,5,-trimethylbenzene and naphthalene above remediation goals, and the ninth and tenth CAP progress reports showed that the overall trend is a reduction in the concentration of petroleum hydrocarbons in the groundwater. These progress reports also indicated that the areal extent of COCs in groundwater has also declined since the source of groundwater contamination was removed.

In order to address the slight rebound of concentrations of 1,2,4-trimethylbenzene in well FBSB-39-GW-2, an HRC injection took place in the vicinity of this well in FY09. A targeted reapplication of the HRC was performed for these selected areas in FY10. Performance monitoring of this reapplication is planned for FY11 and 12.

ORC was injected in the fall of 2009. Groundwater sampling results from the most recent CAP progress report indicate that

concentrationsof 1,2,4-trimethylbenzene and napthalene have been declining since the ORC was injected. While concentrations of napthalene have declined to levels below the remediation goal, 1,2,4-trimethylbenzene remains at levels still above its remediation goal in one well.

The most recent ORC injection took place in 2012. Levels of 1,2,4 trimethylbenzene and 1,3,5 trimethylbenzene continue to fluctuate above remediation goals in one or two groundwater monitoring wells.

An additional ORC injection took place in FY12 in the vicinity of two groundwater monitoring wells to target detections of trimethylbenzene that continue to fluctuate above remediation goals.

CLEANUP/EXIT STRATEGY

Future injections of ORC will be performed as necessary dependant on groundwater sampling data. If no future reductions in the concentrations of 1,2,4 trimethylbenzene and 1,3,5 trimethylbenzene are observed, alternative remediation methods will be considered. The GAEPD requires three years of semiannual CS after remediation goals are achieved before granting an NFA. This will be followed by abandonment of groundwater monitoring wells.

Site ID: FBSB-64
Site Name: LANDFILL NO. 2

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Metals, Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA	199106	199201
CS	199106	199201
RFI/CMS	199710	200507
CMI(C)	200507	200709
CMI(O)	200509	201409
LTM	201412	201809

RIP Date: 200709

RC Date: 201412

SITE DESCRIPTION

Landfill 2 is located on Main Post and is bounded by Marchant Street on the north, Burr Street on the south, Riordon Street on the west, and Edward Street on the east. This landfill encompasses approximately 62 acres and was operated from 1943 to 1945 using the trench method. Documentation detailing disposed waste is not available. The USAEHA Geohydrologic Study (No. 3826-0833-87) prepared for Landfills 2 and 21 indicated that groundwater contamination had not resulted from past activities. In FY97, the installation conducted an RFI at this site using OMA funding.

The RFI found concentrations of TCE, lead, vanadium and chromium in excess of MCLs in downgradient groundwater monitoring wells. The supplemental RFI and BRA report were submitted to the GAEPD and approved in 2006. A CAP was also submitted to the GAEPD and approved in 2006. The selected corrective action was a limited in situ remediation using an HRC followed by MNA. This was completed in 2006. In April 2007, the first semiannual CAP progress report was submitted to the state and comments were received Aug. 20, 2007. A response to their comments was submitted in October 2007. A CAP second semiannual progress report was submitted to the GAEPD in December 2007.

At the request of the GAEPD, the CAP progress reports for FBSB-26, FBSB-64 and FBSB-99 were combined into one report beginning with the submission of the third CAP progress report. The eighth CAP progress report was submitted to the state in September 2010.

Sampling results indicated that overall chlorinated solvent concentrations are decreasing.

The CAP progress reports 7 and 8 have been submitted to the GAEPD. Both sampling reports showed a continued reduction in total chlorinated solvent concentrations.

As a result of an upward trend in concentrations of TCE in two groundwater monitoring wells during the sixth and seventh sampling events a reapplication of HRC took place in the summer of 2010. This supplemented a previous injection of HRC in 2007.

An additional injection of HRC is planned for FY13. Concentrations of TCE have been decreasing since the supplemental injection of HRC in 2010.

CLEANUP/EXIT STRATEGY

The cleanup strategy includes continued performance monitoring of groundwater with the possibility of future supplemental HRC injections. A five-year review is being conducted in FY13. After remediation goals are reached, semiannual confirmatory groundwater sampling will be conducted for a period of three years.

Limited LUCs, restricting the use of groundwater for drinking purposes, have been implemented until remediation goals are achieved. After NFA is reached, groundwater monitoring wells will be abandoned.

Site ID: FBSB-68
Site Name: LANDFILL NO. 6

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA	198608	199201
CS	198608	199201
RFI/CMS	200201	200504
CMI(C)	200505	200509
CMI(O)	200609	201606
LTM	201707	202009

RIP Date: 200609

RC Date: 201606

SITE DESCRIPTION

Landfill 6 covers approximately 14 acres in a wooded area one mile south of the main post and east of LAAF on Dixie Road. This solid waste trench-and-fill landfill was operated from 1954 to 1958.

The USAEHA Geohydrologic Study (No. 38-26-0602-87) prepared for Landfill 5 and Landfill 6 detected elevated levels of VOCs and SVOCs in groundwater samples. A 1991 USAEHA investigation concluded that Landfill 6 was not the source of the groundwater contamination in this area; however, supplemental investigations have determined that Landfill 6 is the probable contamination source of some of the downgradient wells.

An RFI report has been submitted to the GAEPD. Comments were received and the installation responded to them. In FY03, supplemental sampling of soil and groundwater was conducted.

The RFI was performed concurrently with FBSB-88 (Old Fire Training Area) and FBSB-67 (closed Landfill 5), which are close to this site. The GAEPD requested additional delineation for FBSB-68. In 2003, a supplemental RFI was performed. The supplemental RFI and BRA report were submitted to the GAEPD and comments received. The GAEPD requested the collection of additional soil samples plus the installation of an additional monitoring well in order to provide additional delineation.

This additional work was performed in the fall 2005. The supplemental RFI and BRA report were submitted to the GAEPD and approved in 2006. Additionally, a CAP was submitted to the GAEPD in February 2007 and a CAP was submitted to the state in August 2007. Comments on the CAP were received and were responded to in September 2007. A second set of comments concerning the revised CAP was received in December 2007 and responded to in January 2008.

The first semiannual CAP progress report was submitted in September 2008 and the most recent report was submitted in July 2011.

Recent sampling indicates that benzene concentrations are still declining while concentrations of TCE and tetrachloroethylene (PCE) have not changed significantly.

The CAP was approved in November 2008. Since the CAP was approved detections of benzene and TCE have fluctuated but basically remained at the same level.

In 2009 and 2010 an in situ system was installed to accelerate bioremediation through the subsurface mass transfer of dissolved oxygen directly to the groundwater.

Initial sampling results show an increase in petroleum hydrocarbons which was an expected result of the addition of oxygen to the subsurface groundwater.

Site ID: FBSB-68
Site Name: LANDFILL NO. 6

The in situ system (a bio barrier) was completed in 2011. A total of 21 devices have been installed in order to provide a continuous downgradient barrier for the groundwater contamination to pass through. This barrier will reduce the levels of contaminants in the groundwater and prevent the migration of groundwater contamination further downgradient of the landfill.

CLEANUP/EXIT STRATEGY

Enhanced attenuation with semiannual groundwater monitoring will continue as long as the source of the contamination remains in the landfill.

A five-year review is being conducted in 2013. Once remediation goals are met, three years of semiannual CS will be conducted. After NFA is reached, site closeout and groundwater monitoring well abandonment will occur.

Site ID: FBSB-70
Site Name: LANDFILL NO. 8

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals

Media of Concern: Groundwater

Phases	Start	End
RFA	199106	199201
CS	199106	199201
RFI/CMS	199908	200308
CMI(C)	200510	200609
CMI(O)	200610	200712
LTM	200712	201609

RIP Date: 200610

RC Date: 200712

SITE DESCRIPTION

Landfill 8 is located west of the veterinary hospital and occupies 14 acres. The landfill was operated from 1961 to 1966 as a trench and fill area. It is situated in a potentially sensitive area, as it drains into the Upatoi Creek. The slope of the landfill is within 50 meters of the east bank of the river. Documentation detailing waste disposed at this site is not available. The landfill has eroded to the point that garbage is recognizable on the surface and slope of the landfill. Landfill 8 is listed in the installation RCRA Part B permit along with all other Fort Benning SWMUs.

The surface and slopes of this landfill have deteriorated significantly and will require maintenance and repair. Although various contaminants were detected in soil and groundwater, all were below their respective screening levels.

A geophysical study was conducted and the monitoring of inclinometers for three years (1999 to 2002) has indicated that the landfill is relatively stable with little movement indicated.

A June 1986 Geohydrologic Study by the USAEHA (No.38-26-0905-87) recommended that measures be taken at the landfill to control erosion and groundwater monitoring. Limited groundwater monitoring by the USAEHA revealed that levels of contamination were well within the National Security Drinking Water Regulations (NSDWR) levels. An RFI was conducted in FY99 and results were submitted to the GAEPD in FY00.

The RFI report was approved by the GAEPD and called for continued groundwater monitoring and slope stabilization monitoring. The pesticide storage formulation area, which is adjacent to Landfill 8, was a continuing source of pesticide contamination in the groundwater. In 1997 a contaminated soil removal was completed at the pesticide storage formulation area and this has reduced the levels of pesticide contamination in the Landfill 8 groundwater. The primary groundwater contaminant was VOCs, which were below MCLs but above screening levels. VOCs were detected in only one of 10 monitoring wells.

Access to this site is highly restricted and controlled. A locked fence gate prevents access and the landfill is situated on a high elevation bluff, bounded by a river. The locked gate is the only access to the site. In FY03, steps were taken to control surface erosion, establish a vegetative cover on the landfill, and direct the flow of surface water runoff on the landfill.

In FY03, a supplemental RFI sampling of soil, sediment, surface water and groundwater was conducted. In FY05, the supplemental RFI report and BRA were submitted; they were approved in FY06. The state requested submittal of a CAP to address detections of iron and manganese that are above MCLs in groundwater. In August 2007, a CAP was submitted to the GAEPD and review comments were received. An additional set of comments concerning the supplemental RFI and BRA have also been received and responded to.

In January 2009 the GAEPD reviewed the installation's response to comments concerning the supplemental RFI report.

The installation responded to the state's comments concerning the supplemental RFI and BRA in October 2009 and received their

Site ID: FBSB-70
Site Name: LANDFILL NO. 8

approval in May 2010. A CAP was submitted in June 2007. The CAP proposed permanent LUCs to maintain the integrity of the landfill. GAEPD had expressed concern about one detection of lead above MCLs in two monitoring wells during previous sampling events. The installation discussed the lead detections with the state at the FY11 data gathering visit. The installation proposed sampling all of the groundwater monitoring wells for detections of lead, however GAEPD stated that they would only require the two groundwater monitoring wells with previous detections of lead to be resampled. So accordingly, the two wells were re-sampled in the summer of 2011. All sampling results for lead were non-detect in both wells. A response to the GAEPD letter was prepared and submitted. A five-year review is being conducted in 2013.

CLEANUP/EXIT STRATEGY

A request for approval of the CAP which requires no further sampling was submitted to the state in 2011 and approved in January 2013 with no further sampling requirements.

Mowing and maintenance of the landfill cap will be maintained. LUCs restricting digging and use of groundwater are in place. Now that the CAP is approved, all groundwater monitoring wells and inclinometers will be abandoned.

Site ID: FBSB-75
Site Name: LANDFILL NO. 13

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA	199106	199201
CS	199106	199201
RFI/CMS	199705	200502
IRA	199301	199606
CMI(C)	200502	200509
LTM	200509	201809

RIP Date: N/A

RC Date: 200509

SITE DESCRIPTION

Landfill 13 is an 85-acre landfill located near the intersection of Marne Road and Cusseta Road. Operations at this landfill were initiated in 1965 and continued until 1983. This landfill was operated as an area fill sanitary landfill and was closed according to its permit. Documentation detailing disposed waste at this site is not available though it is thought that household garbage and industrial wastes (solvents) may have been discarded here.

A December 1987 Groundwater Study by USAEHA (No.38-26-0000875-88) indicated groundwater contamination at the site, recommending that an RFI be performed. In 1991, an RFI recommending the preparation of a CAP was prepared and submitted to the GAEPD. The plan recommended that a RCRA cap was needed at Landfill 13 to contain the soil contamination unit. No action was recommended to specifically address groundwater contamination. In 1995, construction of a RCRA composite cap was begun on the landfill and was completed in 1996. An RFI to investigate groundwater contamination was completed in May 1997. The recommendation from the RFI was to monitor the groundwater for three to five years to evaluate performance of the RCRA cap with respect to impacts on groundwater contamination. The GAEPD's comments required preparation and submittal of a CAP.

Groundwater monitoring since 1998 has consistently shown a low level of two contaminants, vinyl chloride and benzene. Both contaminants slightly exceed MCLs in two wells out of a total of 24. A plume is localized in an area of less than an acre. Surface water sampling has not detected any contaminants above regulatory criteria since the start of the monitoring program.

The installation has conducted a risk assessment and submitted a risk assessment report to the GAEPD. The report, approved by the GAEPD, recommended continued groundwater monitoring. Results of the risk assessment were used in preparation of the groundwater CAP.

Runoff from the major catchment areas is controlled by berms and rock flumes. In FY03, an engineering study was conducted to determine the sources and extent of landfill seepage areas, the subsidence of the landfill cap, and the integrity of the synthetic liner and methane vents. While the results of the study showed no current impact to the integrity of the cap, it recommended maintenance actions to prevent any future degradation. These recommendations were implemented in FY07. In FY04, semiannual groundwater monitoring was completed and annual groundwater monitoring will continue through FY10.

In October 2007, a CAP progress report for 2007 was submitted. Sampling results indicated that concentrations of benzene were below the MCL in all monitoring wells with the exception of one, where the concentration was slightly above the MCL.

In January 2009, the 2008 CAP progress report for Landfill 13 was submitted to the state. Recent sampling results indicate that benzene and vinyl chloride concentrations remain slightly above their respective MCLs. A statistical analysis was performed to determine the trend of VOCs detected during the current sampling event. Only significant downward trends were detected.

The CAP progress report for 2011 was submitted to the state in January 2012. Vinyl Chloride was the only contaminant above the MCL in one groundwater monitoring well. Minor erosional features along the landfill fence line were corrected in 2012.

Site ID: FBSB-75
Site Name: LANDFILL NO. 13

CLEANUP/EXIT STRATEGY

A five-year review will be conducted in 2013. Long-term maintenance of the landfill cap and fencing will continue. Once the concentrations of benzene and vinyl chloride are below their respective MCLs, three years of annual CS will be conducted before an NFA will be requested. Well abandonment activities will then be conducted.

Site ID: FBSB-86
Site Name: FORMER PEST MIXING STOR AREA (BLDG 1396)

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Pesticides

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA	198909	199003
CS	198909	199003
RFI/CMS	199003	199212
DES	199502	199606
CMI(C)	199702	199812
LTM	199901	201709

RIP Date: N/A

RC Date: 199901

SITE DESCRIPTION

The Former Pesticide Mixing and Storage Area, located west of the intersection of Anderson Avenue and Tenth Division Road on the main post, was the central location for pesticide mixing and storage for all of Fort Benning. As early as 1945, pesticides including DDT, Mirex, Chlordane and Lindane were mixed at this site. According to installation personnel, mixing at this facility was discontinued in the late-1980s, though pesticides were stored inside the building until as late as 1993. Sampling and analysis efforts conducted by the USAEHA and ABB Environmental Services indicated elevated concentrations of pesticides in the surficial soils surrounding Building 1396. There were three contaminated buildings on-site that were demolished and removed. The contaminated soil was excavated, removed, and chemically oxidized at a treatment, storage and disposal facility. Clean soil was used to replace the contaminated soil. A small amount of contaminated soil had to be left in place under a building foundation (Bldg 267). Should the building be demolished, the small amount of pesticides will be removed.

Groundwater monitoring has indicated that pesticides are still present in the groundwater at levels below regulatory criteria. A CAP and BRA were submitted to the GAEPD and approved. The selected corrective action has been implemented. Currently, groundwater monitoring in support of the corrective action is required by the GAEPD.

The revised third CAP monitoring report was sent to the GAEPD in November 2007 and approved in December 2007. The fourth CAP monitoring report was submitted in September 2008. The installation requested the transfer of three downgradient monitoring wells located within project FBSB-70 (Landfill 8) to the FBSB-86 groundwater monitoring network. The reason for this transfer was the recent detection of similar pesticide compounds in one or more of these downgradient wells which is related to the pesticide site. The transfer of wells was approved.

Recent groundwater sampling results confirmed there is a reduction in the total amount of pesticides detected in groundwater. All detections are below the preliminary remediation goals (PRGs) and MCLs for all sampling events.

The results of 2009 sampling event indicated that several target analytes were either elevated or reported for the first time. These results were considered to be suspect due to the fact that the analytical laboratory that processed these samples went bankrupt during this period. Groundwater sampling in both 2010 and 2011 confirmed that the 2009 sampling results were not valid.

The March 2011 sampling results indicated that only two compounds, dieldrin and heptachlor epoxide were detected. Both of these compounds were below remediation goals and MCLs.

CLEANUP/EXIT STRATEGY

As a result of the five-year review, in situ treatment of the residual pesticides under Bldg 267 is being considered. An alternate remedy also being considered is demolition of the building and removal of the contaminated soil under the building foundation. Three years of LTM will be conducted with well abandonment planned for FY15.

Site ID: FBSB-93
Site Name: INSTALL TANK RPR/VEH MAINT SHOPS

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA	199101	199201
CS	199705	199710
RFI/CMS	199808	200509
IRA	200504	200611
CMI(C)	200609	200708
CMI(O)	200709	201609
LTM	201610	202009

RIP Date: 200709

RC Date: 201609

SITE DESCRIPTION

The Installation Tank Repair/Vehicle Maintenance Shop consists of approximately two to three fenced acres located approximately 400 feet east of the intersection of 11th Airborne Division Road and 187th Infantry Regiment Street in the Sand Hill area. In addition to Building 3716, the area contains seven separate maintenance shops, an abandoned washrack, an abandoned oil change and grease rack, the foundation of a former large vehicle maintenance shop and an unpaved military equipment park.

The visual staining of the concrete and unpaved soil gravel areas, along with stressed vegetation, are an indication of releases from past disposal practices.

In 1993, a contractor conducting personnel interviews in preparation for the 1993 IAP update learned that the repair of combat vehicles and heavy construction equipment occurred at this site at least since 1943. The MOGAS and diesel fuel are stored in two 600-gallon capacity ASTs; hydraulic fluid, oils, thinners, and solvents are stored in 55-gallon drums. Prior to implementation of the installation waste recycling program, waste segregation and proper disposal methods were not implemented. Currently, wastes are segregated and placed in 55-gallon drums and sent to the Defense Reutilization and Marketing Office (DRMO). Because there is a potential for improper disposal or accidental releases of hazardous constituents, further investigations were recommended for this site.

In 2006, a BRA work plan was submitted as a supplement to the RFI report. The BRA report was approved by the GAEPD. Also in that year, an interim removal action was conducted during which DPE was used for free-product removal. In March 2007, a CAP was prepared and submitted to the GAEPD. The proposed corrective action includes ISCO using an ozone sparging system along with institutional controls and MNA. The system is expected to operate for three years.

Construction of the ozone sparging system was completed in 2008, and ozone sparging operations began in October 2008. Performance monitoring includes two years of quarterly sampling followed by three years of semiannual sampling.

Since 2008, the installation has received several sets of comments from the state concerning the CAP. The installation responded to the most recent set of comments from the state, concerning the CAP in December 2010. The installation received approval of the CAP in 2011.

To date, nine CAP progress reports have been submitted to the state. An initial decline in concentrations in the monitoring wells had been noted from the first quarterly sampling (February 2009) to the seventh quarterly (August 2010). In 2011, a slight rebound was noted in two wells with a sheen of free-product detected in the one well which had previously had free-product removed. In addition to performance monitoring and continued ozone sparging, DPE events have been scheduled to address the reoccurrance of free-product in the one groundwater monitoring well.

Since operation of the remediation system in 2009, overall concentrations of COCs have been declining and the size of the plume

has been shrinking significantly. Wells located in the core of the plume have shown a rebound that fluctuates in concentrations over time. These fluctuations are believed to be related to changes in the subsurface conditions of the perched aquifer. Changing groundwater elevations allow the release of COCs from the soils to the dissolved phase in the groundwater.

In FY12, an upgradient groundwater monitoring well was installed to ensure there was not an additional upgradient contamination source. Several upgradient soil borings were also obtained to determine if there was evidence of additional contamination in the soils. No evidence of a secondary upgradient source was detected.

Concurrent with the aforementioned monitoring well installation, the ozone system was overhauled and the ozone generator replaced, distribution of the ozone to sparge points will be targeted to concentrate on the sparge points located in the plume core. A five-year review of the system is being conducted in 2013.

CLEANUP/EXIT STRATEGY

Operation of the remediation system will be continued until remediation goals have been achieved. This will be followed by three years of semiannual CS. After CS is completed an NFA designation will be requested for this site. Site closeout will include decommissioning of the ozone sparging system with abandonment of 82 sparging wells and 17 groundwater monitoring wells.

Site ID: FBSB-94
Site Name: INSTALLATION GAS STATIONS

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Petroleum, Oil and Lubricants (POL), Volatiles (VOC)

Media of Concern: Groundwater, Soil, Surface Water

Phases	Start	End
RFA	198201	198207
CS	199705	199710
RFI/CMS	200101	200502
CMI(C)	200301	200509
CMI(O)	200509	201308
LTM	201309	201509

RIP Date: 200509

RC Date: 201308

SITE DESCRIPTION

The gas stations listed below are suspected of having the potential for contamination based on the presence of leaking USTs and vehicle maintenance activities. All sites were referenced in the 1982 installation assessment; however, that document did not detail the potential for contamination from each site. Furthermore, SIs were not conducted in association with this document. The USACE, Savannah District, is executing a CAP part B for FBSB-94C.

The 94C - Building 3763:
A gas station was located approximately 400 feet south of the intersection of 11th Airborne Division Road and 187th Infantry Regiment Street in the Sand Hill area. The building was demolished and only the concrete building foundation remains.

In 1993, when a contractor conducted personnel interviews at this site in preparation for the 1993 draft of the IAP, it was learned that each of the three 10,000-gallon capacity USTs, previously containing unleaded gasoline, had been reported as leaking. Soils in the vicinity of the USTs were excavated due to elevated petroleum hydrocarbons detected in the subsurface soil samples collected. No groundwater investigation was implemented. In the past, this facility performed general vehicle maintenance (i.e., oil changing). Waste oil generated from these activities was deposited in a UST on-site. The facility is no longer in operation. All USTs, including the waste oil USTs, were removed from the sites in 1992.

The CAP (part A and B), along with an amendment, were submitted to the GAEPD UST program for review. Comments were received and responses made. The CAP has been approved and free-product removal by DPE began in FY05. In 2006, an amendment to the CAP part B to include ISCO through injection of hydrogen peroxide and persulfate combined with DPE was approved.

The 94D - Building 9051:
A gas station was located at the intersection of Marne Road and Bell Richards Street in the Kelley Hill area. Three USTs and in 1997 one oil/water separator were removed; contaminated soil was removed and disposed of at that time. The building was demolished in 1998. The area is now an asphalt parking lot for troop billets.

In May 2001, an RFI work plan was submitted to the GAEPD. The work on the RFI commenced in the summer of FY01 and in FY02 the RFI report was submitted and approved. In 2005 the installation received an NFA for Bldg 9051. In June 2007, ISCO in conjunction with DPE was completed. In October 2007, groundwater sampling was completed; the results indicated that BTEX concentrations were below the approved alternate concentration limits (ACL). A second groundwater sampling event took place in March 2008.

If detections are above ACLs in the second sampling event, a second ISCO injection will be performed and semiannual sampling will continue.

In FY08 two performance monitoring events were completed. The results indicated that concentrations of benzene in only one groundwater monitoring well were above the ACL of 499 micrograms per liter (ug/L). In October 2008 a second application of

hydrogen peroxide injection in combination with DPE was applied to remove the residual benzene concentrations.

Sampling results from 2009 indicated that 1.9 feet of free-product was detected in a well that had no free-product detected in the previous sampling event. The free-product was believed to have been mobilized from the subsurface soils as a result of the most recent ISCO event.

One DPE event was conducted after the detection of the free-product and one additional DPE event took place in 2010.

A source removal by soil excavation was conducted in FY11 to remove the potential source of free-product. An undocumented UST was found beneath the building foundation and is believed to have been the source of the free-product.

Sampling results collected after the soil excavation indicated no evidence of free-product and benzene detections were below the ACL.

The second supplemental monitoring only report was prepared and was submitted to GAEPD in February 2013. Sampling results indicated that all benzene concentrations remain below the ACL.

CLEANUP/EXIT STRATEGY

Along with the submission of the second supplemental monitoring only report a request for NFA was submitted to GAEPD. If NFA status is granted, well abandonment activities will occur.

Site ID: FBSB-99
Site Name: ORDNANCE SHOP

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA	198201	198207
CS	199705	199710
RFI/CMS	199901	200509
CMI(C)	200510	200609
CMI(O)	200610	201409
LTM	201412	201809

RIP Date: 200610

RC Date: 201412

SITE DESCRIPTION

Building 223 (Ordnance Shop), located on Kilgore Street, was in use from the 1950s to the 1990s. The site is surrounded by a security fence. The 1982 installation assessment of Fort Benning reported that approximately 60 liters per month of solvents from Building 223 were being taken to the main heating plant for use as a fuel. The solvent was used to clean weapons. Typewriters were also cleaned at this facility by means of a chlorinated solvent. Approximately 300 to 380 liters of solvent were disposed into the sanitary sewer per month. There is a suspected high potential for leakage of contaminants from the sewer into the groundwater and soil.

The installation RCRA part B permit required performance of an RFI at this site. The RFI detected groundwater contamination at the Ordnance Shop in the form of chlorinated solvents. PCE, TCE and cis-1,2-dichloroethene were detected above USEPA risk-based screening levels for tap water. Concentrations of toluene and the above listed compounds were also found above regulatory levels in the subsurface soils.

In January 2000, an RFI report was sent to the GAEPD for review and comment. Further investigation of groundwater, soils and sediments was recommended at this site in order to better delineate the extent of contamination.

The RFI found concentrations of TCE in downgradient groundwater monitoring wells in excess of the standard of five ppb. A supplemental RFI was conducted at this site in conjunction with FBSB-26 and FBSB-64. FBSB-99 is likely to be a primary source of groundwater contamination at all three sites (FBSB-26, FBSB-64, and FBSB-99). PCE and cis-1,2-dichloroethene were also found in the groundwater at FBSB-99.

Interim corrective measures and removal of about 3000 cubic yards of soil were completed during FY04 and the interim corrective measures report was submitted and approved by the GAEPD.

Furthermore, the supplemental RFI and BRA report were submitted to the GAEPD. The report was reviewed, comments provided, and in 2006 a response to the comments was approved by the GAEPD. A CAP was also submitted to the GAEPD and approved in 2006. The selected corrective action was a limited in situ remediation using HRC followed by MNA. This was completed in 2006. The first semiannual CAP progress report was submitted to the state in summer 2007 and the second semiannual CAP progress report was submitted to the GAEPD in December 2007. The second progress report showed a significant reduction of TCE.

At the request of the GAEPD, the CAP progress reports for FBSB-26, FBSB-64 and FBSB-99 were combined into one report beginning with the submission of the third CAP progress report.

In October 2008, the fourth CAP progress report was submitted to the state. Sampling results indicated that overall chlorinated solvent concentrations are decreasing. The eighth CAP progress report was submitted to the state in September 2010.

Site ID: FBSB-99
Site Name: ORDNANCE SHOP

The CAP progress reports 11 and 12 have been submitted to the GAEPD. CAP progress report 13 is being submitted in 2013. Both sampling reports showed a reduction in chlorinated solvent concentrations after the 2010 HRC injection; however, current sampling results show that TCE concentrations are beginning to rebound in one groundwater monitoring well. An additional injection of HRC is planned for FY13.

CLEANUP/EXIT STRATEGY

The cleanup strategy includes continued performance monitoring of groundwater with the possibility of future supplemental HRC injections. A five-year review is scheduled for completion in FY13. After remediation goals are reached, semiannual confirmatory groundwater sampling will be conducted for a period of three years.

Limited LUCs restricting the use of groundwater for drinking purposes have been implemented until remediation goals are achieved. After NFA is reached, groundwater monitoring wells will be abandoned.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FBSB-29	GENERAL PURPOSE MAG (PARKS RANGE)	199201	The 1992 preliminary site inspection for Fort Benning reported no contamination. Based on these findings, no further investigation is recommended for this site. Additionally this is an active site and does not qualify for funds under the IRP.
FBSB-41	EXCHANGE SERVICE OIL(BLDG 1624 & 1625)	199504	This site is NFA (as per a letter form GAEPD) under the CC program.
FBSB-52	AMMO STORAGE (BLDG 5962 THRU 5988)	199208	This site is not an IRP site and was moved to the CC program.
FBSB-54	INSTALLATION PAINT FACILITIES (8)	200709	GAEPD designated in a letter that all 8 sites received an NFA..
FBSB-60	PESTICIDE MIXING STORAGE (BLDG 266)	199201	This site is not an IRP site and was moved to the CC program.
FBSB-61	BLDG 492- PCB SPILL	199201	This site is not an IRP site and was moved to the CC program.
FBSB-62	BATTERY RESTORATION (BUILDING 1751)	199507	This site is NFA according to a letter from GAEPD.
FBSB-63	LANDFILL NO. 1	199201	Because the USAEHA geohydrologic (No. 38-26-0817-88) study found no evidence of soil or groundwater contamination, no further response is planned at this site. The state of Georgia has concurred with this evaluation.
FBSB-65	LANDFILL NO. 3	199201	The USAEHA Geohydrologic Study (No. 38-26-0817-88) indicated that no groundwater contamination had resulted from past on-site disposal practices. Therefore, no further investigations are recommended at this site. The state of Georgia has concurred with this evaluation.
FBSB-66	LANDFILL NO. 4	200709	GAEPD issued an NFA for this site in FY05
FBSB-67	LANDFILL NO. 5	200409	This site was being investigated con-currently with FBSB-88 (Old Fire Training Area), and FBSB-68 (Closed Landfill 6), which are in close proximity to this site. Based on the RFI results of all three sites (FBSB-88, -67, -68), it has been deter-mined that this landfill is not a source of contamination. NFA was granted in 2005. All well abandonment will be included under FBSB-68 (Closed Landfill 6).
FBSB-69	LANDFILL NO. 7	201102	GAEPD issued an NFA in FY2010
FBSB-71	LANDFILL NO. 9	198803	Based on the results of the USAEHA groundwater study, NFA is planned for this site.
FBSB-72	LANDFILL NO. 10	200107	The results of the investigation indicated that no contaminants above screening levels were found in groundwater. Also none of the compounds found in landfill soils or downgradient sediment samples exceeded the risk based screening criteria. The RFI Report recommended

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			NFA, and was approved by the state.
FBSB-73	LANDFILL NO. 11	198906	Neither the 1994 USAEHA SWMU investigation nor the 1987 USAEHA geohydrologic study (#38-26-0875-88), found significant groundwater contamination at this site. National Primary Drinking Water Standards (NPDWR) were not exceeded by any analytical parameter. As a result, no further RA is planned for this site.
FBSB-74	LANDFILL NO. 12	198708	Based on the available site information and the USAEHA SWMU Investigation and groundwater studies, this site is NFA under the CC program.
FBSB-76	LANDFILL NO. 14	198708	This site is NFA under the CC program.
FBSB-77	LANDFILL NO. 15	198708	Based on the results of the USAEHA groundwater study and the 1994 SWMU investigation, no further investigations are planned at this site.
FBSB-78	LANDFILL NO. 16	198711	Based on the fact that NPDWR were not exceeded by any analytical parameter during USAEHA testing in 1987, no further investigations are recommended at this site.
FBSB-80	LANDFILL NO. 18	198803	Based on the results of the 1987 USAEHA Geohydrologic Study and the 1994 USAEHA SWMU investigation, no further actions are planned for this site.
FBSB-81	LANDFILL NO. 19	198711	Based on the results of the USAEHA Geohydrologic Study and the 1994 SWMU investigation, no further investigations are recommended at this site.
FBSB-82	LANDFILL NO. 20	198803	The USAEHA Geohydrologic Study (No. 38-26-0817-88) prepared for Landfill Nos. 3, 9, 18, and 20 indicated that no groundwater contamination had resulted from past on-site disposal practices. Based on available site information, and because the landfill debris was removed and relocated, no further investigations are planned at this site.
FBSB-83	LANDFILL NO. 21	199507	The USAEHA Geohydrologic Study (No. 38-26-0833) prepared for Landfill Nos. 2 and 21 indicated that no groundwater contamination had resulted from past on-site disposal practices. Based on available site information, and the fact that no groundwater contamination is occurring, no further actions or investigations are planned for this site.
FBSB-85	LANDFILL NO. 23	198906	Since the USAEHA groundwater study indicated that contamination levels were within NPDWR standards and the 1994 SWMU investigation confirmed this, no

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			further actions are planned for this site.
FBSB-87	CHEMICAL AGT BURIAL SITE(HARMONY CHURCH)	200803	NFA approved by GAEPD April 2008.
FBSB-88	OLD FIRE TRAINING AREA	200806	NFA approved by GAEPD April 2008.
FBSB-89	LF ADJACENT TO TOXIC AGENT BURIAL SITE	199506	This site is NFA under the CC program.
FBSB-90	LF, NORTH END AT MASSEY RD	199507	This site is NFA under the CC program.
FBSB-91	INSTALLATION MOTOR REPAIR SHOP	200505	The Installation has received a NFA for this site at GAEPD in FY05.
FBSB-92	INSTALLATION FLAM MATL STGE	199507	This site is NFA under the CC program.
FBSB-95	LEAKING USTS	200710	This site was given an NFA designation by GAEPD on August 10, 2007
FBSB-96	MAIN MALL SERVICE STATION	200403	Recent sampling results indicate that all groundwater monitoring wells show concentrations of BTEX below the regulatory limit of 71.28 micrograms per liter of Benzene. The most recent sampling event took place in the summer of FY03. This site was designated NFA by GAEPD in Nov 2003.
FBSB-97	ABANDONED DRUM DISPOSAL SITE	200509	GAEPD approved the NFA in FY05.
FBSB-98	SOIL CONTAMINATION AT STOCKADES	200403	As a result of the RFI, it was determined that this site is not the source of POL contamination. GAEPD agreed that this site requires NFA.

IRP Schedule

Date of IRP Inception: 198201

Past Phase Completion Milestones

1982	
CS	(FBSB-62 - BATTERY RESTORATION (BUILDING 1751))
RFA	(FBSB-26 - FIXED LAUNDRY (BLDG 2500), FBSB-39 - ENG FIELD MAIN SHOP (BLDG 377), FBSB-41 - EXCHANGE SERVICE OIL(BLDG 1624 & 1625), FBSB-62 - BATTERY RESTORATION (BUILDING 1751), FBSB-91 - INSTALLATION MOTOR REPAIR SHOP, FBSB-92 - INSTALLATION FLAM MATL STGE, FBSB-94 - INSTALLATION GAS STATIONS, FBSB-99 - ORDNANCE SHOP)
1987	
RFI/CMS	(FBSB-74 - LANDFILL NO. 12, FBSB-76 - LANDFILL NO. 14, FBSB-77 - LANDFILL NO. 15, FBSB-83 - LANDFILL NO. 21)
CS	(FBSB-74 - LANDFILL NO. 12, FBSB-76 - LANDFILL NO. 14, FBSB-77 - LANDFILL NO. 15, FBSB-78 - LANDFILL NO. 16, FBSB-80 - LANDFILL NO. 18, FBSB-83 - LANDFILL NO. 21)
RFA	(FBSB-74 - LANDFILL NO. 12, FBSB-76 - LANDFILL NO. 14, FBSB-77 - LANDFILL NO. 15, FBSB-78 - LANDFILL NO. 16, FBSB-80 - LANDFILL NO. 18, FBSB-83 - LANDFILL NO. 21)
1988	
CS	(FBSB-81 - LANDFILL NO. 19, FBSB-82 - LANDFILL NO. 20)
RFA	(FBSB-71 - LANDFILL NO. 9, FBSB-81 - LANDFILL NO. 19, FBSB-82 - LANDFILL NO. 20)
RFI/CMS	(FBSB-71 - LANDFILL NO. 9, FBSB-78 - LANDFILL NO. 16, FBSB-80 - LANDFILL NO. 18, FBSB-81 - LANDFILL NO. 19, FBSB-82 - LANDFILL NO. 20)
1989	
ISC	(FBSB-95 - LEAKING USTS, FBSB-96 - MAIN MALL SERVICE STATION)
RFA	(FBSB-73 - LANDFILL NO. 11, FBSB-85 - LANDFILL NO. 23)
INV	(FBSB-95 - LEAKING USTS, FBSB-96 - MAIN MALL SERVICE STATION)
RFI/CMS	(FBSB-73 - LANDFILL NO. 11, FBSB-85 - LANDFILL NO. 23)
CS	(FBSB-73 - LANDFILL NO. 11, FBSB-85 - LANDFILL NO. 23)
1990	
RFA	(FBSB-86 - FORMER PEST MIXING STOR AREA (BLDG 1396), FBSB-87 - CHEMICAL AGT BURIAL SITE(HARMONY CHURCH))
CS	(FBSB-86 - FORMER PEST MIXING STOR AREA (BLDG 1396), FBSB-87 - CHEMICAL AGT BURIAL SITE(HARMONY CHURCH))
1992	
RFA	(FBSB-29 - GENERAL PURPOSE MAG (PARKS RANGE), FBSB-52 - AMMO STORAGE (BLDG 5962 THRU 5988), FBSB-54 - INSTALLATION PAINT FACILITIES (8), FBSB-60 - PESTICIDE MIXING STORAGE (BLDG 266), FBSB-61 - BLDG 492- PCB SPILL, FBSB-63 - LANDFILL NO. 1, FBSB-64 - LANDFILL NO. 2, FBSB-65 - LANDFILL NO. 3, FBSB-66 - LANDFILL NO. 4, FBSB-67 - LANDFILL NO. 5, FBSB-68 - LANDFILL NO. 6, FBSB-69 - LANDFILL NO. 7, FBSB-70 - LANDFILL NO. 8, FBSB-72 - LANDFILL NO. 10, FBSB-75 - LANDFILL NO. 13, FBSB-88 - OLD FIRE TRAINING AREA, FBSB-90 - LF, NORTH END AT MASSEY RD, FBSB-93 - INSTALL TANK RPR/VEH MAINT SHOPS, FBSB-98 - SOIL CONTAMINATION AT STOCKADES)
CS	(FBSB-29 - GENERAL PURPOSE MAG (PARKS RANGE), FBSB-52 - AMMO STORAGE (BLDG 5962 THRU 5988), FBSB-60 - PESTICIDE MIXING STORAGE (BLDG 266), FBSB-61 - BLDG 492- PCB SPILL, FBSB-63 - LANDFILL NO. 1, FBSB-64 - LANDFILL NO. 2, FBSB-65 - LANDFILL NO. 3, FBSB-66 - LANDFILL NO. 4, FBSB-67 - LANDFILL NO. 5, FBSB-68 - LANDFILL NO. 6, FBSB-69 - LANDFILL NO. 7, FBSB-70 - LANDFILL NO. 8, FBSB-72 - LANDFILL NO. 10, FBSB-75 - LANDFILL NO. 13, FBSB-88 - OLD FIRE TRAINING AREA)
PA	(FBSB-89 - LF ADJACENT TO TOXIC AGENT BURIAL SITE)
1993	
RFI/CMS	(FBSB-86 - FORMER PEST MIXING STOR AREA (BLDG 1396))
1994	
RFA	(FBSB-97 - ABANDONED DRUM DISPOSAL SITE)
1995	
SI	(FBSB-89 - LF ADJACENT TO TOXIC AGENT BURIAL SITE)

CAP	(FBSB-96 - MAIN MALL SERVICE STATION)
CS	(FBSB-90 - LF, NORTH END AT MASSEY RD)
1996	
DES	(FBSB-86 - FORMER PEST MIXING STOR AREA (BLDG 1396), FBSB-96 - MAIN MALL SERVICE STATION)
IRA	(FBSB-75 - LANDFILL NO. 13)
1998	
CS	(FBSB-26 - FIXED LAUNDRY (BLDG 2500), FBSB-39 - ENG FIELD MAIN SHOP (BLDG 377), FBSB-54 - INSTALLATION PAINT FACILITIES (8), FBSB-91 - INSTALLATION MOTOR REPAIR SHOP, FBSB-93 - INSTALL TANK RPR/VEH MAINT SHOPS, FBSB-94 - INSTALLATION GAS STATIONS, FBSB-97 - ABANDONED DRUM DISPOSAL SITE, FBSB-98 - SOIL CONTAMINATION AT STOCKADES, FBSB-99 - ORDNANCE SHOP)
IMP(C)	(FBSB-96 - MAIN MALL SERVICE STATION)
1999	
CMI(C)	(FBSB-86 - FORMER PEST MIXING STOR AREA (BLDG 1396))
2001	
RFI/CMS	(FBSB-72 - LANDFILL NO. 10)
CAP	(FBSB-95 - LEAKING USTS)
IMP(C)	(FBSB-95 - LEAKING USTS)
2003	
RFI/CMS	(FBSB-70 - LANDFILL NO. 8)
2004	
IMP(O)	(FBSB-96 - MAIN MALL SERVICE STATION)
RFI/CMS	(FBSB-66 - LANDFILL NO. 4, FBSB-67 - LANDFILL NO. 5, FBSB-98 - SOIL CONTAMINATION AT STOCKADES)
2005	
RFI/CMS	(FBSB-26 - FIXED LAUNDRY (BLDG 2500), FBSB-39 - ENG FIELD MAIN SHOP (BLDG 377), FBSB-54 - INSTALLATION PAINT FACILITIES (8), FBSB-64 - LANDFILL NO. 2, FBSB-68 - LANDFILL NO. 6, FBSB-75 - LANDFILL NO. 13, FBSB-88 - OLD FIRE TRAINING AREA, FBSB-91 - INSTALLATION MOTOR REPAIR SHOP, FBSB-93 - INSTALL TANK RPR/VEH MAINT SHOPS, FBSB-94 - INSTALLATION GAS STATIONS, FBSB-97 - ABANDONED DRUM DISPOSAL SITE, FBSB-99 - ORDNANCE SHOP)
CMI(C)	(FBSB-26 - FIXED LAUNDRY (BLDG 2500), FBSB-68 - LANDFILL NO. 6, FBSB-75 - LANDFILL NO. 13, FBSB-88 - OLD FIRE TRAINING AREA, FBSB-94 - INSTALLATION GAS STATIONS)
RFA	(FBSB-100 - Athletic Field in Sand Hill, FBSB-101 - Two 30,000 gal AST's)
2006	
RFI/CMS	(FBSB-69 - LANDFILL NO. 7, FBSB-87 - CHEMICAL AGT BURIAL SITE(HARMONY CHURCH))
CMI(C)	(FBSB-70 - LANDFILL NO. 8, FBSB-99 - ORDNANCE SHOP)
2007	
RFI/CMS	(FBSB-100 - Athletic Field in Sand Hill, FBSB-101 - Two 30,000 gal AST's)
CMI(C)	(FBSB-100 - Athletic Field in Sand Hill, FBSB-101 - Two 30,000 gal AST's, FBSB-39 - ENG FIELD MAIN SHOP (BLDG 377), FBSB-64 - LANDFILL NO. 2, FBSB-93 - INSTALL TANK RPR/VEH MAINT SHOPS)
IRA	(FBSB-101 - Two 30,000 gal AST's, FBSB-93 - INSTALL TANK RPR/VEH MAINT SHOPS)
LTM	(FBSB-54 - INSTALLATION PAINT FACILITIES (8), FBSB-66 - LANDFILL NO. 4)
2008	
LTM	(FBSB-87 - CHEMICAL AGT BURIAL SITE(HARMONY CHURCH))
IMP(O)	(FBSB-95 - LEAKING USTS)
CMI(O)	(FBSB-39 - ENG FIELD MAIN SHOP (BLDG 377), FBSB-70 - LANDFILL NO. 8, FBSB-88 - OLD FIRE TRAINING AREA)

IRP Schedule

2011

LTM (FBSB-69 - LANDFILL NO. 7)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
FBSB-100	Athletic Field in Sand Hill	FBSB-100 Athletic Field in Sand Hill	20131130
FBSB-101	Two 30,000 gal AST's	FBSB-101 Two 30,000 gal AST's	20131130
FBSB-70	LANDFILL NO. 8	FBSB-70 Landfill 8	20131130
FBSB-26	FIXED LAUNDRY (BLDG 2500)	FBSB-70 Landfill 8	20131130

Final RA(C) Completion Date: 200709

Schedule for Next Five-Year Review: 2013

Estimated Completion Date of IRP at Installation (including LTM phase): 202109

FORT BENNING IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FBSB-100	Athletic Field in Sand Hill	CMI(O)						
		LTM						
FBSB-101	Two 30,000 gal AST's	CMI(O)						
		LTM						
FBSB-26	FIXED LAUNDRY (BLDG 2500)	CMI(O)						
		LTM						
FBSB-39	ENG FIELD MAIN SHOP (BLDG 377)	LTM						
FBSB-64	LANDFILL NO. 2	CMI(O)						
		LTM						
FBSB-68	LANDFILL NO. 6	CMI(O)						
		LTM						
FBSB-70	LANDFILL NO. 8	LTM						
FBSB-75	LANDFILL NO. 13	LTM						
FBSB-86	FORMER PEST MIXING STOR AREA (BLDG 1396)	LTM						
FBSB-93	INSTALL TANK RPR/VEH MAINT SHOPS	CMI(O)						
		LTM						
FBSB-94	INSTALLATION GAS STATIONS	LTM						
FBSB-99	ORDNANCE SHOP	CMI(O)						
		LTM						

FORT BENNING

Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 2/1

Installation Site Types with Future and/or Underway Phases

1 Unexploded Munitions/Ordnance
(FTBN-001-R-01)

Most Widespread Contaminants of Concern

Explosives, Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern

Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
N/A				

Duration of MMRP

Date of MMRP Inception 200202

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201609/201609

Date of MMRP completion including Long Term Management (LTM): 201609

MMRP Contamination Assessment

Contamination Assessment Overview

The grenade munitions burial site did not show evidence of MEC or munitions debris on the surface or subsurface. Only one explosive, nitrobenzene, was discovered in soil samples; concentrations were below the USEPA Region 9 residential and industrial PRGs. One metal, aluminum, was found in the soil at a level exceeding the USEPA Region 9 industrial PRGs. Several metals and inorganic compounds were also detected above the USEPA Region 9 residential PRGs and/or Fort Benning background 95 percent upper tolerance limits (UTLs). No explosives or metals were detected above the USEPA Region 9 soil screening levels. No explosives were detected in groundwater samples, but arsenic and iron exceeding the USEPA Region 9 tap water PRGs were detected in the groundwater; however, both values are below the 95 percent UTL. A PBA contract for execution of the RI/FS was awarded in September 2012. The RI/FS should be completed by 2014 and will focus on identifying potentially buried MEC items with additional sampling for MC if additional MEC burials are uncovered.

The Grenade and Bayonet Court did not show evidence of MEC or MEC scrap on the surface. A geophysical survey identified a total of 1,371 anomalies. No explosives were detected in any of the soil samples. Arsenic was detected in the soil at concentrations exceeding the USEPA Region 9 industrial PRG. Aluminum, iron, lead, manganese, thallium and vanadium were detected at concentrations exceeding the USEPA Region 9 PRGs. Several metals and inorganic compounds were found in samples above the Fort Benning 95 percent UTLs. No metals were detected above the USEPA Region 9 soil screening levels.

Cleanup Exit Strategy

The installation plans to complete an RI/FS for FTBN-001-R-01 and execute follow-on phases and actions as required.

Since the results of the expanded SI failed to detect any evidence of MEC or MC at FTBN-002-R-01, an NFA decision was requested and approved by the state for the entire 25-acre Grenade and Bayonet Court site. No LTM is required.

MMRP Previous Studies

	Title	Author	Date
2005			
	Final Site Inspection Report Fort Benning	US Army Corps of Engineers, Baltimore District, by Malcolm Pirnie Inc	APR-2005
2006			
	Grenade and Bayonet Court Extended Anomaly Investigation	US Army Corps of Engineers, Baltimore District, by Malcolm Pirnie, Inc.	APR-2006
2007			
	Final Grenade and Bayonet Court Extended Anomaly Investigation, Fort Benning, Georgia	US Army Corps of Engineers, Baltimore District, by Malcolm Pirnie	JAN-2007
2010			
	Final Geophysical Survey Report, Grenade Munitions Burial Site	US Army Corps of Engineers, Huntsville District	FEB-2010

FORT BENNING

Military Munitions Response Program

Site Descriptions

Site ID: FTBN-001-R-01
Site Name: GRENADE MUNITIONS BURIAL SITE

STATUS

Regulatory Driver: RCRA

MRSPP Score: 05

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Soil

Phases	Start	End
RFA	200202	200305
CS	200309	200504
RFI/CMS	201209	201409
CMI(C)	201509	201609

RIP Date: N/A

RC Date: 201609

SITE DESCRIPTION

The 28.8-acre Grenade Munitions Burial Site is located in the southwestern portion of the installation, east of the Lawson Army Air Field (LAAF). It was previously identified in the MMRP SI historic records review (HRR) as a 44.7 acre area; however, a determination was made that the site should be reduced to encompass only the portion of the area on which removal actions and explosive ordnance disposal (EOD) responses have been conducted. Thus, the site boundaries were changed and the acreage reduced to 28.8.

The site is currently overlain by the new Ranger Barracks Complex and a portion of the Whole Barracks Renewal Complex. From the 1920s to the 1950s the Grenade Munitions Burial Site was used as a disposal area for grenades and various other munitions types. Buried munitions originated from an ammunition storage area adjacent to the northern edge of the site. Three separate removal actions and five EOD response calls uncovered burial pits containing over 1,500 grenades and other munitions. All of the burial pits were discovered during construction activities at the site between May 1998 and August 2000. Munitions removed from the Grenade Munitions Burial Site include Mk2 hand grenades, M19 smoke rifle grenades, four-inch smokes white phosphorus (WP) mortar, M21 practice landmine, 37 millimeter projectiles, blasting caps, time fuses, igniters, bulk explosives, and small arms ammunition.

An SI of the Ranger Barracks Complex was conducted in 2005. Based on the results of the SI, 3.4 acres of the 28.8 acre complex were recommended for NFA because they were occupied by recently constructed buildings. The SI also recommended that 25.4 acres be included in an RFI.

An RFI will be conducted at this site in 2013. The RFI report and BRA will be submitted to GAEPD upon completion.

CLEANUP/EXIT STRATEGY

The RFI will focus on identifying potentially buried MEC items, discarded military munitions (DMM) with additional sampling for MC if necessary. If any MEC or DMM is identified during the RFI, a removal action will be conducted. Soil and groundwater will be sampled to determine if there have been any MC releases to the environment.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTBN-002-R-01	GRENADE AND BAYONET COURT	200701	An expanded SI was performed in December 2005. The investigation focused on the subsurface anomalies found during the previous geophysical survey. The expanded SI failed to detect or uncover any evidence of MEC or MC. A designation of NFA was approved for the site in December 2006.

MMRP Schedule

Date of MMRP Inception 200202

Past Phase Completion Milestones

2003

RFA	(FTBN-001-R-01 - GRENADE MUNITIONS BURIAL SITE)
PA	(FTBN-002-R-01 - GRENADE AND BAYONET COURT)

2005

SI	(FTBN-002-R-01 - GRENADE AND BAYONET COURT)
CS	(FTBN-001-R-01 - GRENADE MUNITIONS BURIAL SITE)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

To Be Determined

Final RA(C) Completion Date: 201609

Schedule for Next Five-Year Review: 2013

Estimated Completion Date of MMRP at Installation (including LTM phase): 201609

FORT BENNING MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTBN-001-R-01	GRENADE MUNITIONS BURIAL SITE	RFI/CMS						
		CMI(C)						

FORT BENNING

Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 5/1

Installation Site Types with Future and/or Underway Phases

1 Firing Range
(CC-FBSB-102)

2 POL (Petroleum/Lubricants) Lines
(CC-FBSB-103, CC-FBSB-104)

1 Underground Storage Tank
(CC-2485)

Most Widespread Contaminants of Concern

Other (Free-product), Petroleum, Oil and Lubricants (POL), Polycyclic Aromatic Hydrocarbons (PAH)

Media of Concern

Groundwater, Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
CC-1622	Main Post AAFEES Gas Station, BLDG 1622	FRA	FREE PRODUCT RECOVERY	2008
CC-2485	Lawson AAF UST (Bldg 2485)	FRA	FREE PRODUCT RECOVERY	2009

Duration of CR

Date of CR Inception: 199508

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201612/201612

Date of CR completion including Long Term Management (LTM): 201709

CR Contamination Assessment

Contamination Assessment Overview

Environmental restoration activities include the IRP and MMRP. On Dec. 29, 2008, the Office of the Deputy Under Secretary of Defense for Installations and Environment, [ODUSD(I&E)], issued an interim policy for DERP eligibility that rescinded the 1986 eligibility date for the IRP and the 2002 eligibility date for the MMRP. This made many sites previously addressed in the Army's Compliance-related Cleanup (CC) program eligible for the DERP. Sites that are now eligible for the Munitions Response (MR) program have been migrated from Army Environmental Database-Compliance-related Cleanup (AEDB-CC) and given the naming convention of other MR sites. The newly eligible non-MR type sites are considered to be Installation Restoration (IR) sites; however, the newly eligible sites are being coded as Compliance Restoration (CR) in AEDB-R to distinguish them from the original IR sites and IR metrics.

Leaking POL USTs are the primary sources of contamination with two of the three sites in the CR program.

The third site is a former skeet range which may have released lead and PAHs into the soil and groundwater environment.

Cleanup Exit Strategy

Once remediation goals are met, a designation of NFA will be requested from the GAEPD.

CR Previous Studies

	Title	Author	Date
2003			
	Corrective Action Plan, Part B, Underground Storage Tank, Building 2485, Ft Benning	US Army Corps of Engineers, Savannah District	DEC-2003
2006			
	Amendment to Corrective Action Plan, Part A, Underground Storage Tank, Building 1622, Ft. Benning, GA	US Army Corps of Engineers, Savannah District	JUN-2006
2009			
	Resource Conservation and Recovery Act, Facility Assessment Report. for Supplemental Field Sampling and Analysis Activities for the Fort Benning Skeet Range	US Army Corps of Engineers, Savannah District	APR-2009
2010			
	Site Assessment Report with Confirmatory Sampling for Former Pumphouse and Dispenser System in Sand Hill	US Army Corps of Engineers, Savannah District.	MAY-2010
	Site Assessment Report with Confirmatory Sampling, Former AST, Pump House and Dispenser in Sand Hill	US Army Corps of Engineers, Savannah District	MAY-2010
	Sixth Monitoring Only Report (Sampling Round 8) Building 2485, Fort Benning, GA	US Army Corps of Engineers, Savannah District	MAY-2010
	Fourth Monitoring Only Report (Sampling Round 4) for Building 1622, Fort Benning, GA	US Army Corps of Engineers, Savannah District	AUG-2010
2013			
	RCRA Facility Investigation Report for Solid Waste Management Unit FBSB-102, Former Rod and Gun club Skeet Range.	US Army Corps of Engineers, Savannah District	JAN-2013

FORT BENNING

Compliance Restoration

Site Descriptions

Site ID: CC-2485
Site Name: Lawson AAF UST (Bldg 2485)

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Other (Free-product)

Media of Concern: Groundwater

Phases	Start	End
ISC	199508	200009
CAP	200303	200510
IMP(C)	200606	200909
IMP(O)	200703	201509
LTM	201510	201709

RIP Date: 200909

RC Date: 201509

SITE DESCRIPTION

Historically, the main post area of Fort Benning was pasture and farmland. The area was heavily developed during the 1930s, and is the main administrative and training area of Fort Benning. This UST site is located within LAAF, adjacent to main post on the Chattahoochee River. The LAAF has been in continuous use since the 1920s.

This UST containing JP5 (kerosene) was installed in the late-1990s to fuel a large emergency generator. The leak was a result of the generator contractor not properly replacing the piping that connected the tank to the generator. A CAP (part B) was submitted and approved in 1999 for free-product removal. Removal of the free-product began in 2003, which is still ongoing. MNA will be implemented after the free-product removal is completed. Limited ISCO will be performed on the dissolved phase when the free-product is removed.

The site has been further delineated and free-product persists. Currently two free-product pumps are in operation and a DPE event was performed in August 2007. In November 2007, additional delineation of the free-product area was conducted using a free interphase probe. Additional extraction wells were installed in spring 2008 and a second DPE event was conducted in summer 2008. Free-product is inaccessible as it is under the taxi way of the airport.

Based on the size of the plume and amount of product, the removal of free-product continued through FY10 along with annual performance monitoring. After the product level in the ground had been reduced to less then 1/10 inch, a limited ISCO event was performed in FY11 to remove the residual product. After the ISCO event, one year of long-term monitoring began in FY12 in order to monitor the performance and ensure no there was no product rebound; however, a rebound did occur in FY12 and second ISCO event was conducted. Long-term monitoring is expected to continue through FY14 at this time. Site close-out with the abandonment of 14 wells will follow with state concurrence.

In the fall of 2010, all pumps were removed to determine product levels at site. All wells showed only a trace of product (<1/8 inch). Socks were placed in wells containing product and periodically checked for rebound. Product levels remained consistently low for a period of one year and in December of 2011 the planned ISCO event was performed to remove the residual product in the subsurface and reduce the dissolved constituents in the groundwater. Two rounds of performance monitoring were conducted in FY12. A second ISCO injection was conducted in July 2012. Two additional rounds of performance monitoring are planned for FY13 to ensure no product rebound.

CLEANUP/EXIT STRATEGY

When GAEPD UST groundwater criteria has been met, a request for NFA will be submitted to the state. Once NFA is approved, all groundwater monitoring wells will be abandoned.

Site ID: CC-FBSB-102
Site Name: A 70 acre former skeet range

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Polycyclic Aromatic Hydrocarbons (PAH)

Media of Concern: Soil

Phases	Start	End
RFA	200901	200907
RFI/CMS	201102	201509
IRA	201202	201509

RIP Date: N/A

RC Date: 201509

SITE DESCRIPTION

This former skeet range occupied 70 acres in the Harmony Church Area of Fort Benning. It was operated for more than 30 years and is being considered as a potential construction site. A RFA was conducted in 2009 with CS. Twenty soil samples were collected from the area of the Former Skeet Range. Eighteen of these samples were surface soil samples from less than one foot below ground surface (bgs) and two were collected from a depth of four feet bgs in areas of heavy skeet debris.

Lead was detected in all 20 samples, but no detections exceeded the established USEPA screening criteria for residential use of 400 ug/kg. PAHs were detected in 13 of the 20 samples. These detections exceeded various USEPA screening levels for residential land use in nine of these samples. Because of these exceedences further delineation and removal of the skeet remnants were recommended. An RFI was conducted in FY12.

The cleanup strategy for this site is to perform an RFI and BRA. An interim measures RA (IMRA) will be conducted in order to remove all soils that contain pieces of clay pigeons and/or visible lead shot as well as soils that are identified as having exceeded an industrial land use cleanup level that will be calculated during the risk assessment. CS will be conducted on soils that are remaining in place after the removal action.

CLEANUP/EXIT STRATEGY

Based on the results of the RFI, groundwater is not expected to be impacted. The exit strategy for this site includes an IMRA of contaminated soil with permanent LUCs. This is expected to result in an NFA determination by the state.

Site ID: CC-FBSB-103
Site Name: Former Pumphouse and Fuel Dispenser

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Soil

Phases	Start	End
RFA	201001	201005
RFI/CMS	201210	201609

RIP Date: N/A

RC Date: 201612

SITE DESCRIPTION

This is located south of the intersection of 2nd Armored Division Road and 16th Infantry Regiment Street in the Sand Hill area of Fort Benning. The dispenser island was identified as Building 3251. The site was initially identified on an installation map as the location of a former Area Fueling System which was operated from the late-1940s until the 1950s. A schematic drawing of the site indicated that two 25,000-gallon ASTs containing fuel occupied the site. Additionally, a pumphouse and numerous dispensing units along with 850 feet of piping were included. The only remaining structures are several concrete dispensing islands and the pumphouse.

The RFI is scheduled to be conducted in 2013. Based on the results of the RFI, corrective action and long-term monitoring may be required.

If the results of the RFI indicate the presence of contaminants above regulatory limits, corrective action will be conducted until remedial goals have been achieved.

CLEANUP/EXIT STRATEGY

If corrective action is required an NFA will be requested once remediation goals have been met and three years of CS have been completed. If no corrective action is required, a request for NFA will be submitted to the state.

Site ID: CC-FBSB-104
Site Name: A Former fuel dispensing facility

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Soil

Phases	Start	End
RFA	201001	201005
RFI/CMS	201210	201609

RIP Date: N/A

RC Date: 201609

SITE DESCRIPTION

This site is located at the intersection of 2nd Armored Division Road and Second Street in the Sand Hill area of Fort Benning. When operational it consisted of a 25,000-gallon AST, a pump house and a fuel dispensing unit. The site was active during the 1940s.

The RFI is scheduled to be conducted in 2013. If the results of the RFI indicate the presence of contaminants above regulatory limits, corrective action will be conducted until remedial goals have been achieved.

CLEANUP/EXIT STRATEGY

If corrective action is required, an NFA will be requested once remediation goals have been met and three years of CS have been completed. If no corrective action is required, a request for NFA will be submitted to the state.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CC-1622	Main Post AAFEES Gas Station, BLDG 1622	201212	Letter from GAEPD dated November 29, 2012 granting NFA status.

CR Schedule

Date of CR Inception: 199508

Past Phase Completion Milestones

2000

ISC (CC-1622 - Main Post AAFEES Gas Station, BLDG 1622, CC-2485 - Lawson AAF UST (Bldg 2485))

2006

CAP (CC-2485 - Lawson AAF UST (Bldg 2485))

INV (CC-1622 - Main Post AAFEES Gas Station, BLDG 1622)

2008

CAP (CC-1622 - Main Post AAFEES Gas Station, BLDG 1622)

IMP(C) (CC-1622 - Main Post AAFEES Gas Station, BLDG 1622)

2009

IMP(C) (CC-2485 - Lawson AAF UST (Bldg 2485))

RFA (CC-FBSB-102 - A 70 acre former skeet range)

2010

RFA (CC-FBSB-103 - Former Pumphouse and Fuel Dispenser, CC-FBSB-104 - A Former fuel dispensing facility)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

To Be Determined

Final RA(C) Completion Date: 200909

Schedule for Next Five-Year Review: 2013

Estimated Completion Date of CR at Installation (including LTM phase): 201709

FORT BENNING CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CC-2485	Lawson AAF UST (Bldg 2485)	IMP(O)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**	**FY19+**
CC-FBSB-102	A 70 acre former skeet range	RFI/CMS						
		IRA						
SITE ID	**SITE NAME**	**PHASE**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**	**FY19+**
CC-FBSB-103	Former Pumphouse and Fuel Dispenser	RFI/CMS						
SITE ID	**SITE NAME**	**PHASE**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**	**FY19+**
CC-FBSB-104	A Former fuel dispensing facility	RFI/CMS						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 200912

Restoration Advisory Board (RAB): No

Reason Not Established: The community has expressed no sufficient, sustained interest in a RAB.

Community Interest Solicited on: 200912

Efforts Taken to Determine Interest

In February 1995, Fort Benning initiated a community relations plan (CRP), to provide the public with the latest information concerning installation environmental issues of concern. The CRP was also implemented to improve lines of communication between Fort Benning and the residents of Columbus and Phenix City.

As part of the CRP, residents of the Fort Benning, Columbus, and Phenix City communities were asked if they were interested in having a RAB established, or in being selected as a member of a RAB.

Results

The responses and the CRP did not reflect enough sustainable community interest in creating a Fort Benning RAB. Respondents repeatedly claimed that they trusted Fort Benning officials and the US Army to do what was necessary to clean up the environmental contamination.

Follow-up Procedures

The CRP was updated in October 1997, January 2000, April 2004, January 2006, and in December 2009. The public was again queried concerning whether or not there was sufficient community interest in forming a RAB. The overall judgment was that there was still not enough local community interest.

Additional Community Involvement Information

An update of the CRP will be completed in 2013. If the local community indicates an interest in establishing a RAB, one will be formed.

Administrative Record is located at

Meloy Hall, Building 6, Room 310, Fort Benning, GA 31905-5122
POC: 706.545.6427

Information Repository is located at

Sayers Memorial Library
Building 93, Wold Avenue
Fort Benning, GA 31905
POC: 706-545-4911

Current Technical Assistance for Public Participation (TAPP): N/A

TAPP Title: N/A

Potential TAPP: N/A